DRIVER

NOVEMBER 1972

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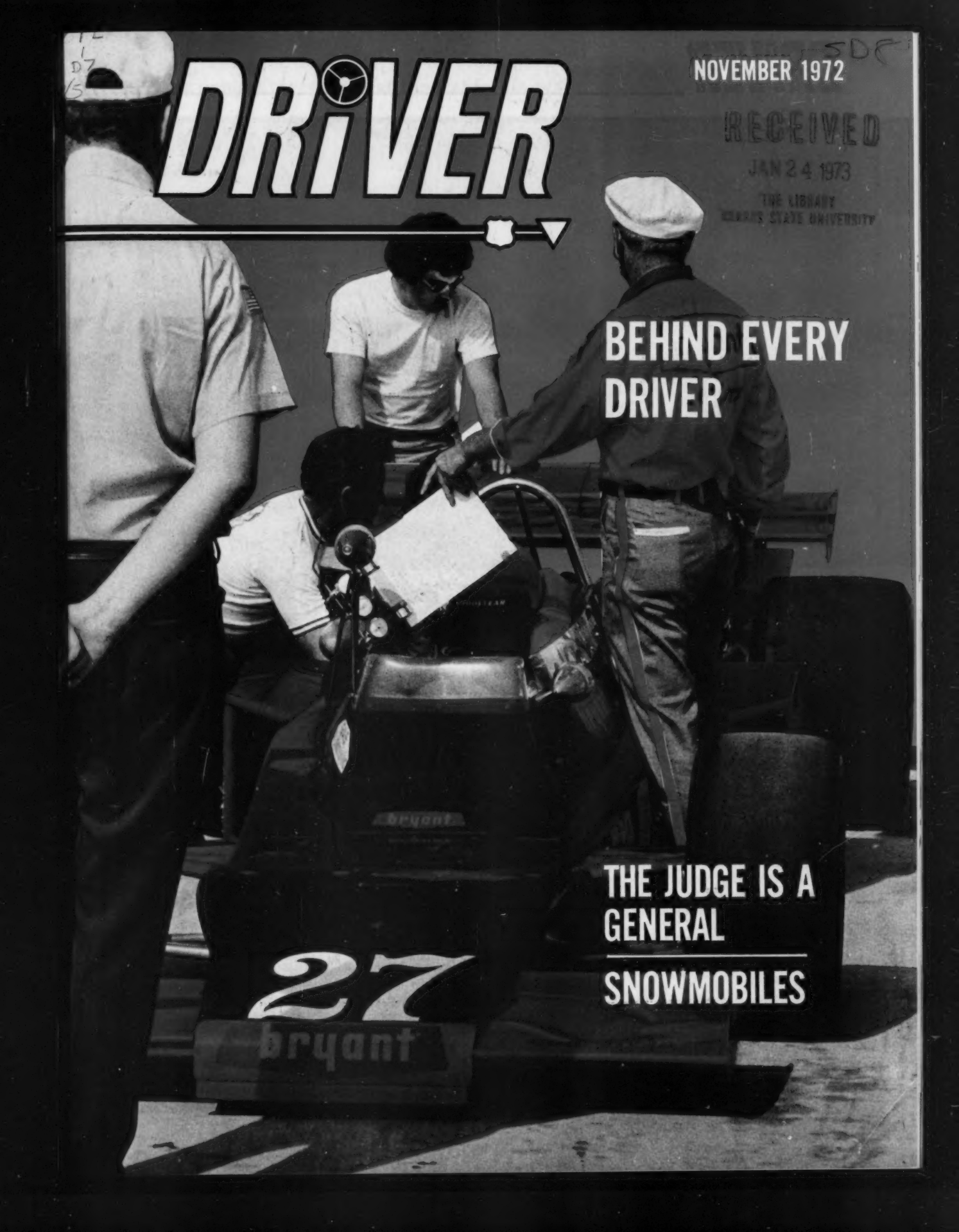
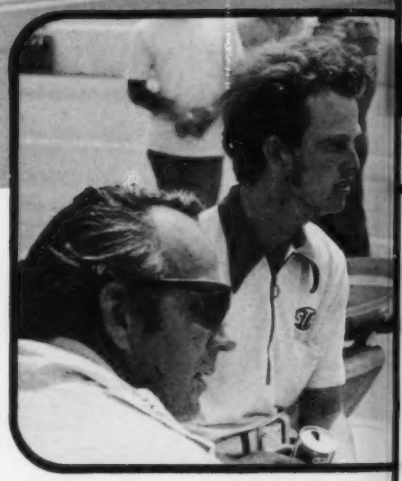


BEHIND EVERY DRIVER

THE JUDGE IS A GENERAL

SNOWMOBILES

Jerry Grant's "EAGLE" on its way to the historic 200-mph lap at Ontario.



Teamwork is the secret of safe and successful championship racing. Driver Wally Dallenbach and mechanic Bruce Anderson discuss the car and track conditions before a qualifying run.

The evolution of auto racing in the United States is well exemplified by the 2-year-old Ontario Motor Speedway. The Speedway is designed to provide the utmost in safety for both spectator and competitor, and to accommodate the "new breed" of racing. Racing has become an exacting science dominated by intelligent, thoughtful men who place safety and professionalism above everything, even above winning.

The drivers are backed by men just as intelligent, professional, and dedicated, who play a large part in the success and safety of the driver. These men, who prepare and maintain the exotic racing machines, are the "champions" DRIVER talked with right up to the start of this year's California 500.

QUALIFYING DAY

The excitement surrounding the 500 began mounting months before race day as fans anticipated a 200-mph lap at Ontario. No one was disappointed. Early on the first day of qualifications, Saturday, 26 August (a week before race Sunday), an unusual silence at the Ontario Speedway was shattered by the scream of Jerry Grant's Nr 48 Eagle on its way to racing history; he turned the first two laps of his four-lap qualifying run on the 2½-mile Ontario oval at 200-plus mph, and finished his pole-winning ride with an average of 199.60 mph.

The electricity Grant created inspired such favorites as Mario Andretti, Al Unser, Gordon Johncock, and A. J. Foyt to click off times in the 190-mph vicinity, promising a fast and exciting field of champions for race day. But even in the inspiration of the record speeds, the wise pros did not push beyond their machines' limits, and there were few mishaps. Johnny Rutherford spun and grazed the wall, but walked away unhurt—thanks to his highly specialized safety equipment—; and Greg Weld's racer caught fire, but he was protected by his fire suit and jumped unharmed from the car. The Ontario Speedway fire crew doused the flames immediately.

Bobby Unser capped the build-up for the Third Annual California 500 by coolly shattering Grant's record with a sizzling four-lap average of 201.374 mph on the second day of qualifications.

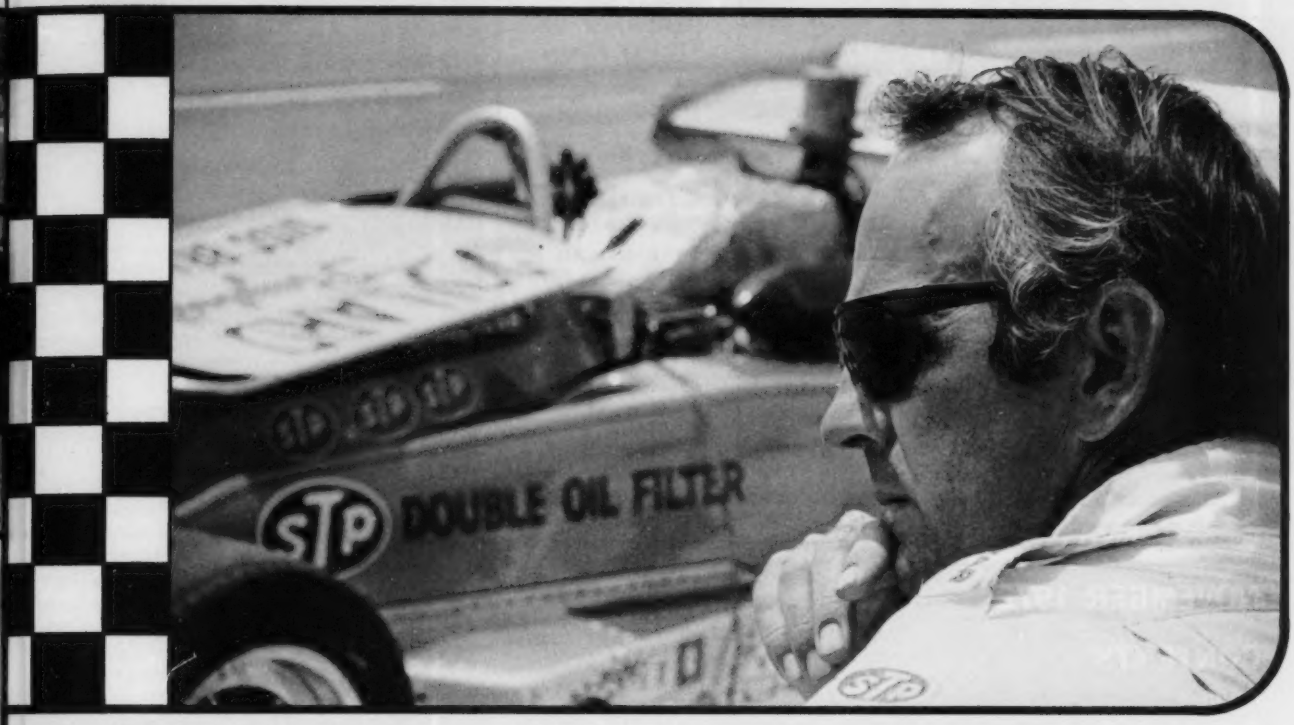
RACE DAY

The drama began early on race day as more than 160 thousand racing fans watched the "quickest" field in the history of championship racing move out behind the pace car. Pole-sitter Jerry Grant occupied that position for only two pace laps—a blown engine eliminated him before the race even started.

When the green flag fell, 32 screaming cars streamed into the treacherous first turn. But once again professionalism prevailed, and every car made it through turns one and two without incident. Somehow, cagey veteran A. J. Foyt grabbed the lead in the first-turn scramble and opened up a 5-carlength advantage down the back-chute on the still jumbled field.

Into lap three the field began to spread out, with Al Unser, Peter Revson, and Gordon Johncock battling for

DRIVER gets behind the scenes at the California 500



BEHIND EVERY DRIVER

top spots, and with hard-charging Mario Andretti starting to fly, all chasing Foyt's howling "Coyote." Almost unnoticed in the middle of the pack, Bobby Unser was picking off a car a lap in hot pursuit of the leaders.

Suddenly the pace changed; an invasion of the track by some startled jackrabbits brought out the yellow flag for the first of numerous times before the end of the afternoon. Then, with the green out, A. J. Foyt opened up a lead once again, but lost power on the backstretch, becoming the first of many leaders to fall victim to mechanical problems in the failure-plagued 500.

After Foyt, the steady stream of cars dropping out was broken only by a downpour which halted the race for 2 hours on lap 76.

The re-start saw a continuation of the mechanical failures until the steady Gordon Johncock moved into the lead for what appeared to be an easy win. But he blew a tire and spun on lap 170, and Roger McClusky, veteran of 12 years on the championship circuit without a big finish, was suddenly in position to inherit one of the biggest.

Mike Hiss in ailing Mark Donohue's super-quick McClaren was within striking range, but was content with second place. He elected not to push the car and risk the fate of the other 23 drivers who did not finish.

So, a very happy Roger McClusky who had stayed in the top 10 all day with good, steady driving won the flag-slowed, rain-delayed Third Annual California 500 by saving his car and outlasting the faster machines.

This year's '500, which saw most of the top names eliminated by the time the race was half run, and only 10 cars finish, once again demonstrated the importance of the mechanic's role in championship auto racing.

But in all of the record-breaking excitement surrounding this race, the importance of the crew and mechanical set-up of the car, had been forgotten by everyone but the drivers and especially DRIVER.

DRIVER VISITS THE PITS

DRIVER's technical editor and staff artist discovered a different but just as vital '500 this year during many hours spent around the pits before race day. While observing and talking with the behind-the-scenes "champions," the mechanics, DRIVER was convinced that just as many races are won and lost by unglamorous, long hours of preparation as are won by exciting action on the race course.

To find out what a '500 race is really about, what it takes to win (or at least

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DRIVER

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

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NOVEMBER 1972 VOLUME 6 NUMBER 5

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INCREASED SUBSCRIPTION RATES

Due primarily to increases in postal costs, the annual domestic subscription rate for DRIVER magazine will be increased from $2.00 to $3.50. The overseas rate will be $4.50; single-copy rate, 35c. The Government Printing Office will apply the increased rates to new subscriptions, renewals, and single-copy orders received after 1 January 1973.*

* See "SUBSCRIPTION" block below for ordering address.

AFRP 127-1

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THE EDITOR SPEAKS

DOUBLE CLUTCH

THE POWER OF INSTANT MENTAL ADJUSTMENT

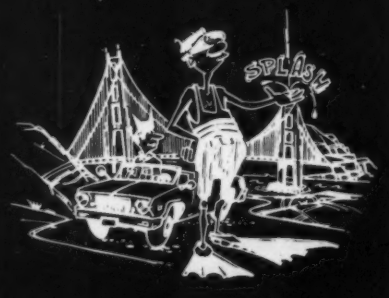
Recently a friend drove me from Alameda to the airport south of San Francisco, a distance of about 20 miles. We found our car awash in the first heavy rain of the season, and my friend stated matter-of-factly that the first rain "always" results in a large number of traffic accidents. Believing him to be exaggerating, I watched to see how many I could see on our short trip. The total: *six* accidents, one of them involving five vehicles!

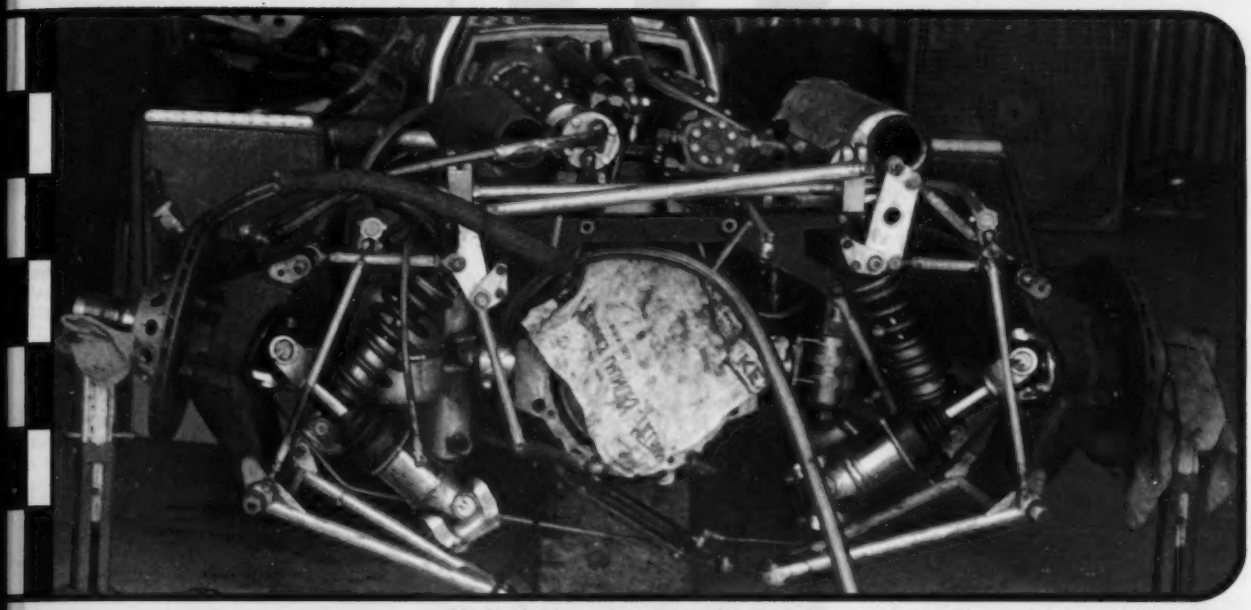
Fortunately, the wreckage was not all on our side of the road, so we made it to the plane on time. However, one point was made very clear to me: under adverse weather conditions there is NO WAY you can proceed as you would normally; without taking a terrific gamble. Simply turning on the wipers and taking a swipe at the fogged glass inside the car won't hack the program.

In bad weather you are handicapped by much more than poor visibility. There is also a dramatic and treacherous change in traction. This was apparently quite obvious to my friend, a highway engineer who knows the effects of moisture on every type of road surface. He knows *why* you will be in trouble if you don't slow down.

But the real key to making it is more subtle. You must shift immediately to a new way of thinking, whereby your goal of reaching a destination within a certain time becomes a secondary matter. Of primary importance now is making your destination without mishap. This instant change is very difficult because it involves recognition of the situation, adjustment of priorities, and modified behavior.

I'll bet several of those unfortunate drivers wish they had taken a stab at it.*





Mechanics tear down the entire car before every race. They check every critical stress point to insure that it is sound, and replace or rebuild the engine and transmission for reliability. Jack stands are always used to protect the mechanic and the machine.

continued

BEHIND EVERY DRIVER

finish) a grueling 500-miler, and what hard-learned advice the participants could pass along, DRIVER's reps went to the pits. They spoke with members of the STP crew, to mechanics for winner Roger McClusky's car, and to a crew member for sixth-place finisher "Salt" Walther, among others.

The mechanics expressed varied opinions about racing and the mechanic's importance to the car and driver. But they all agreed on certain points, including the need for precise mechanical work and the utmost in safety—both on the track and on the highway.

THE STP CREW

The morning of qualifications found mechanics making feverous, final preparations and adjustments to their cars before trials began. Those who weren't working showed signs of having been at it all or most of the night. In the mass of activity in the infield area, DRIVER found two tired members of the STP crew, their preparations completed, waiting for the qualifying runs. Sitting on the pit wall were a parts-chaser* identified only as "Jacques" and a one-time parts-chaser named Bruce Anderson, who worked his way up to chief engine mechanic.

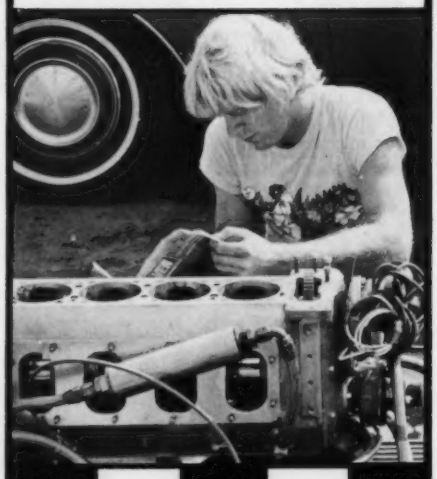
Anderson spoke of racing, the '500, and his job, while checking over Wally Dallenbach's bright-red "Lola." "Heat is the big factor on this track," he began.

** A person who does odd jobs, minor mechanical work, and goes for parts.*

"The track is about 5 mph faster than Indy because of the banking in the turns. But it is also hotter here, so you can count on a lot of cars not finishing; especially if it is real hot like last year.

"Also, you have to remember that heat makes oil come out of the track and makes it a lot slicker. It also makes the track surface change every time around, so the driver has to really be careful. This is a good thing to remember about highway driving. When it gets hot, you'd better slow down on curves and watch your braking distance—especially on asphalt. Also, watch your oil and temperature gages; the heat is really rough on an engine."

Hard work and super preparation is the name of the game for the mechanics. Gary Agard prepares an "offy" engine for the next race, several days before the '500. Gary thought DRIVER had a lot of good things to say, especially in the way of safety. As both mechanic and race driver, Agard is concerned with safety on and off the track.



When Anderson got up to talk to another member of the crew, Jacques pointed out the numerous oil coolers and radiators on the race car and added, "I agree with Bruce. People just don't realize what the heat does to their engine and entire car. We keep these cars running as cool as possible . . . we have to. Most engine failures are caused by heat, either directly or indirectly.

"I know a lot of people don't pay any attention to lubrication, and drive long distances at high speeds when they are low on oil. Yet we carry 5 gallons of oil in these cars, and that isn't enough. We also change the oil and filters every time the car is run.

"From what I have seen in just a few weeks around these cars, I think changing the oil and filter at least every couple thousand miles is one of the best things you can do for your engine."

Bruce Anderson returned and talked more about the mechanical tortures of a '500, which brought up the subject of mechanical preparation:

"The single most important thing when working on our cars is making sure the job is done thoroughly and correctly. For instance, if I am assigned to check some bolts and can't get to a cer-

continued

tain one, I find out from somebody how to get to it. If I just assumed the bolt was tight, and the driver went out and hit the wall because it wasn't, I'd feel awfully foolish. Even when we do everything right, there's a chance the car will fail; but that's a big part of what racing is all about.

"The same thing should apply to the guy working on his own car. If you don't know how to do something, find out from somebody who does. Triple-check everything, and don't have a bunch of different guys doing one job. And, unless you have a lot of money, you'd better take any job you don't know how to do to a good mechanic. Because, if you mess it up, it might cost you a lot to have someone straighten it out.

"Some people think they have to know everything about a car and engine without having to look up anything. But I've been working on this engine 2 years, and still ask questions and refer to manuals. I double-check everything before beginning a job and triple-check when I'm done, even if it is a simple job I've done a hundred times. It's the good mechanic who looks up everything, not the stupid one."

As Wally Dallenbach pulled his car out onto the track for his qualification run, the tired look left Bruce Anderson's face. While Bruce strained to hear the engine on the faraway back straight, he mumbled, "I really enjoy what I do, it all pays off in the end."

But, perhaps the crews don't get enough credit, especially with so much pressure on them.

AFTER THE TIME TRIALS

The bustling activity of time trials is followed by a quiet but busy week for the mechanics. After the trials, the car is completely torn down, checked, and rebuilt. All of the critical parts of the chassis, especially the suspension and steering systems, are magnafluxed,* and both the engine and transmission are rebuilt or replaced. Every critical part must be checked or replaced and noted as such for the car to pass the USAC (U.S. Auto Club) pre-race safety inspection. During the pre-race week, the mechanics work with two objectives in mind: to make the car as *safe* and *reliable* as possible.

GARY AGARD,
MECHANIC FOR JOHN MARTIN

In the garage area a few days before the race, DRIVER talked to young Gary Agard as he cleaned a completely torn-down "offy" engine. Agard, a mechanic for John Martin's car also races USAC midgets and hopes to work his way up into championship cars in a couple of years.

Agard gave a little different reason for getting into the mechanics game:

"I think you must not only have mechanical ability, but complete familiarity with the car to be a good driver; that's why I am working my way up as a mechanic.

"It's just as important for the average motorist to know about his car. I don't advocate everyone doing his own mechanical work, but it is a lot safer for everybody when a person out there —either on the track or the highway— knows how his car works and why."

Agard asked us to step back while he used pressurized fluid to clean the engine block, and talked more about the safety aspects of his occupation.

"We take every precaution when working on the car. One of the most important steps is always putting a car up on stands and blocking the wheels when it is off the tires; this protects both you and the car. A lot of people don't think this is necessary if no one is getting under the car, but you also have to remember what can happen to a car when it falls.

"There are two of us that work on the car, and we always double-check each other's work. We are as clean and precise as possible when handling parts; and, of course, every part is first quality and in top condition.

"The only protection the driver has is his fire suit and helmet. I've had some dizzying head bangs, while racing, and I hate to think what might have happened without the best helmet. That's one thing you'll find around any track where professionals are competing; they use only the best safety equipment. Some people don't think their heads are worth the extra 20 dollars for the best helmet; but with everything you hear about cheaper helmets cracking or breaking, I sure wouldn't get anything but the best."

Agard considers the dangers of racing a part of his "job."

"I know it's not exactly safe to race; but when you stop to think about it, it's not much safer to drive on the highway. At least on the track everyone accepts driving as a job and concentrates on it. If the average guy would accept

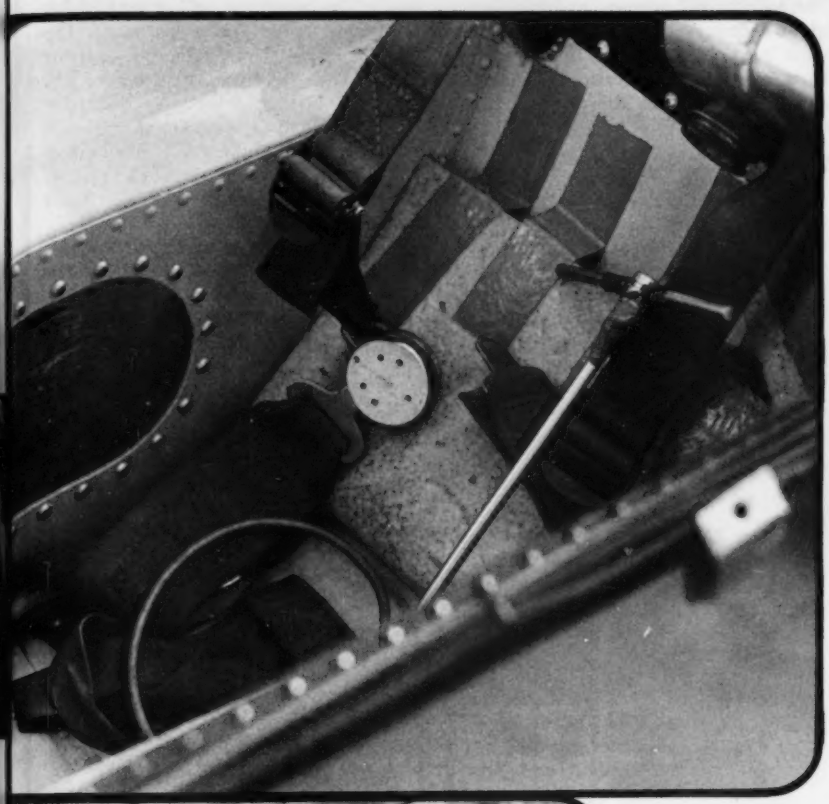
Rex Schendley, a veteran race mechanic of 25 years, inspects a glove that is part of the fire-proof suit the driver and each crew must wear during a race.

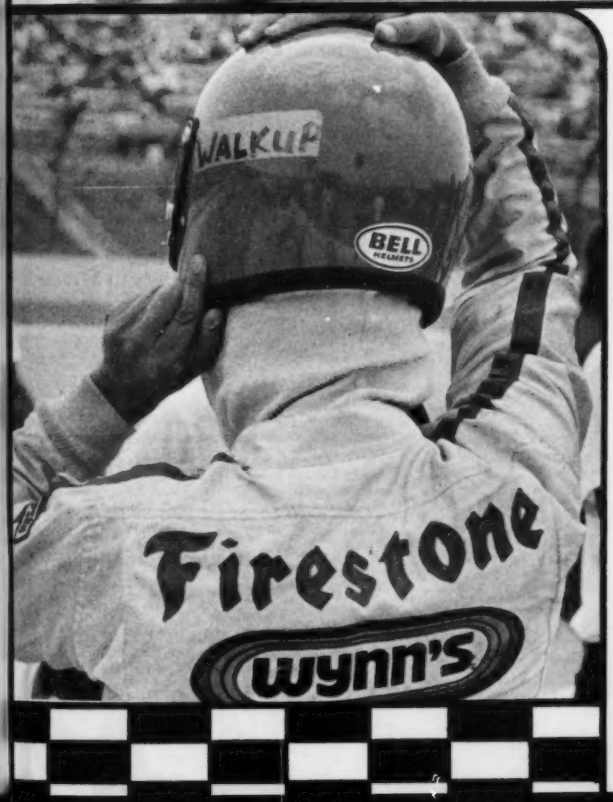
Every wheel is carefully balanced and matched to the race car to insure maximum traction and tire life. An out-of-balance wheel destroys a tire in a matter of miles at racing speeds. The same thing happens to your personal car if you neglect wheel balance; it just takes a little longer.

Adjustments never end, as crews try to make the cars as safe, fast, and reliable as possible. Here, crew members adjust the rear airfoil to make the car handle better. Airfoils, both front and rear, are essential for keeping the cars on the track at speeds exceeding 220 mph.

** A non-destructive method of checking metal for cracks and weaknesses.*

Drivers literally become a part of the car when strapped in with these 5,000 pound-stress safety belts. Being strapped in tightly is important for safety purposes, but also gives the driver a better "feel" of the car — especially in the corners. This also applies to highway driving. Every driver should be belted-in tightly for better control of his car.





Bruce Walkup suits-up for the track. Notice the mandatory fire-suit and full-coverage helmet. But, these pros don't have to be made to use the best equipment; that's one of the reasons they're pros. They also treat their helmets in a professional manner, by storing them in a protective bag when not in use. Helmets are tough, but can be easily damaged if they are banged around or abused. Take a tip from the pros and treat your helmet as if easily damaged; then it won't fail when you need it most.

normal driving as a job [which it is] and concentrate on driving like the pro racer does, it would be a lot safer out on the road. At least I know, when something happens on the track, it is probably mechanical and not really another driver's fault. The unfortunate thing is that, on the road, trouble is often caused by carelessness or because somebody was in no condition to drive."

25 YEARS A MECHANIC

After we left Gary Agard, we met a veteran mechanic of 25 years. Rex Schendley had a lot to say about what he had learned in his years around the racing business:

"A race car is designed to be driven hard and, accordingly, every stress point is checked before it ever leaves the garage. But the average car just isn't designed for the tortures of all-out driving. Also, the average motorist doesn't have any idea what condition his car is in, especially the critical things like shocks, brakes, and even tires.

"I put around 75,000 miles a year on my private car, and am convinced that speed belongs only on the race track. Seventy mph on the freeway really is fast, yet you don't feel it because of the comfort and quietness of the car.

"And another thing, the driver who doesn't tailor the car to himself, as the race driver does, is ignoring an important factor in driving. Before even starting the car, he should adjust all mirrors, the seat, and . . . of course . . . the safety belt or harness. I personally think anyone who doesn't use a crash restraint is just plain crazy. When I'm driving or riding, I want all passengers to be belted in. Even if I am going to sleep in the right seat, I will buckle up; and I want the driver to be belted in tightly, so I will know he won't be thrown away from the wheel if he gets into trouble.

"I see a lot of people treat their seat belts awfully casually for something that could save their lives. The restraints in this car are 5000-pound stress belts, and are kept in perfect condition. But you see a lot of motorists driving around with doors closed on their belts, and the buckles dangling on the ground as they drive. This could ruin the latching mechanism and weaken the fibers in a belt until, eventually, it would be useless in a crash. We also tighten the race car harness to the frame regularly. Everyday drivers should do the same with their belts.

"I think it's really bad that people don't take driving more seriously. I'll bet a lot of people who have had accidents were either smoking or dropped something and leaned over to pick it up. Do you think this race car's driver

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"Speeding?" the defendant asked the judge with a note of righteous indignation in his voice. "Why, my car won't even go that fast!"

Judge Edwin R. Johnston looked down on the last defendant to face him at the end of a busy day in Atlanta's traffic court and thought about how many times he had heard that story. It was one time too many. "I'll go out and drive that car in the same area where the policeman gave you the ticket," he told the defendant. "If your car goes that fast I am going to put you in jail for 10 days. If it doesn't go that fast, I will dismiss the case and have the officer apologize to you."

The magistrate discarded his robe, donned a jacket, and soon was cruising down the expressway in the defendant's car. The speedometer crept upward until it was supporting the testimony of the police officer. The defendant, sitting dejectedly in the pasenger's seat, was plainly upset.

When they were back in traffic court once again, the judge let the man sweat it out for awhile in the hot, stuffy detention room filled with persons bound for jail. Then, deciding the defendant had learned a lesson, the judge discharged him with a stern lecture.

Judge Johnston hasn't been able to devote that much time and effort in each of the 140,000 cases he has handled during 11½ years as an Atlanta traffic court judge. But his somewhat unorthodox handling of the case indicates his desire to see that each defendant is treated fairly, that effective corrective action has been taken, and that the public is protected from careless and otherwise unsafe drivers.

In addition, the judge has found time to combine his law career with a lengthy career as an Air Force Reservist. He has been a member of the Air Force on active and reserve duty since 1942, and is currently Vice Commander of the Eastern Air Force Reserve Region where he is better known as Brig Gen Edwin R. Johnston.

TYPES OF OFFENSES

Judge Johnston and five other judges handle 125,000 traffic cases a year in a city with more than a half-million vehicles. The cases range from a young man who proudly took credit recently for driving 140 miles per hour in a 65-mph zone to a 76-year-old man who told the court he began driving before Georgia required licenses, and had never felt it necessary to obtain one. He had never been cited, and was in court only because another motorist had run a stop sign and struck the older driver's vehicle.

SPEEDERS

Speeding is the most common offense on the court docket, according to Judge Johnston, and young persons between 16 and 25 are the major violators in these cases. For this reason, he takes a special interest in youth. He meets them in the schools, where he spoke to some 8,000 students in a recent year; also in the courtroom, where he applies a wide degree of latitude in dealing out corrective punishment, and in the city's traffic school where he lectures.

FINES OFTEN INEFFECTIVE

Judge Johnston has not been able to find a single approach that will work for all young people, so he has tailored his methods for specific situations. If a youth charged with a driving violation has a steady job, the punishment most likely will be aimed at his pocketbook. The judge is inclined to make the fine a "pretty good lump" in hopes it will "cause him to think it's not worth a week's salary to go out there and speed at 80 miles an hour." But if a young driver exudes a noticeable degree of affluence, or his doting parents stand nearby with an open checkbook, the defendant may find himself minus a driver's license.

"The economic situation doesn't affect these individuals," Judge Johnston said, "but causing a young driver to go back to walking, or making it necessary for his mother or father to drive him everywhere he goes, usually impresses all concerned."

8,000 "DWIs"

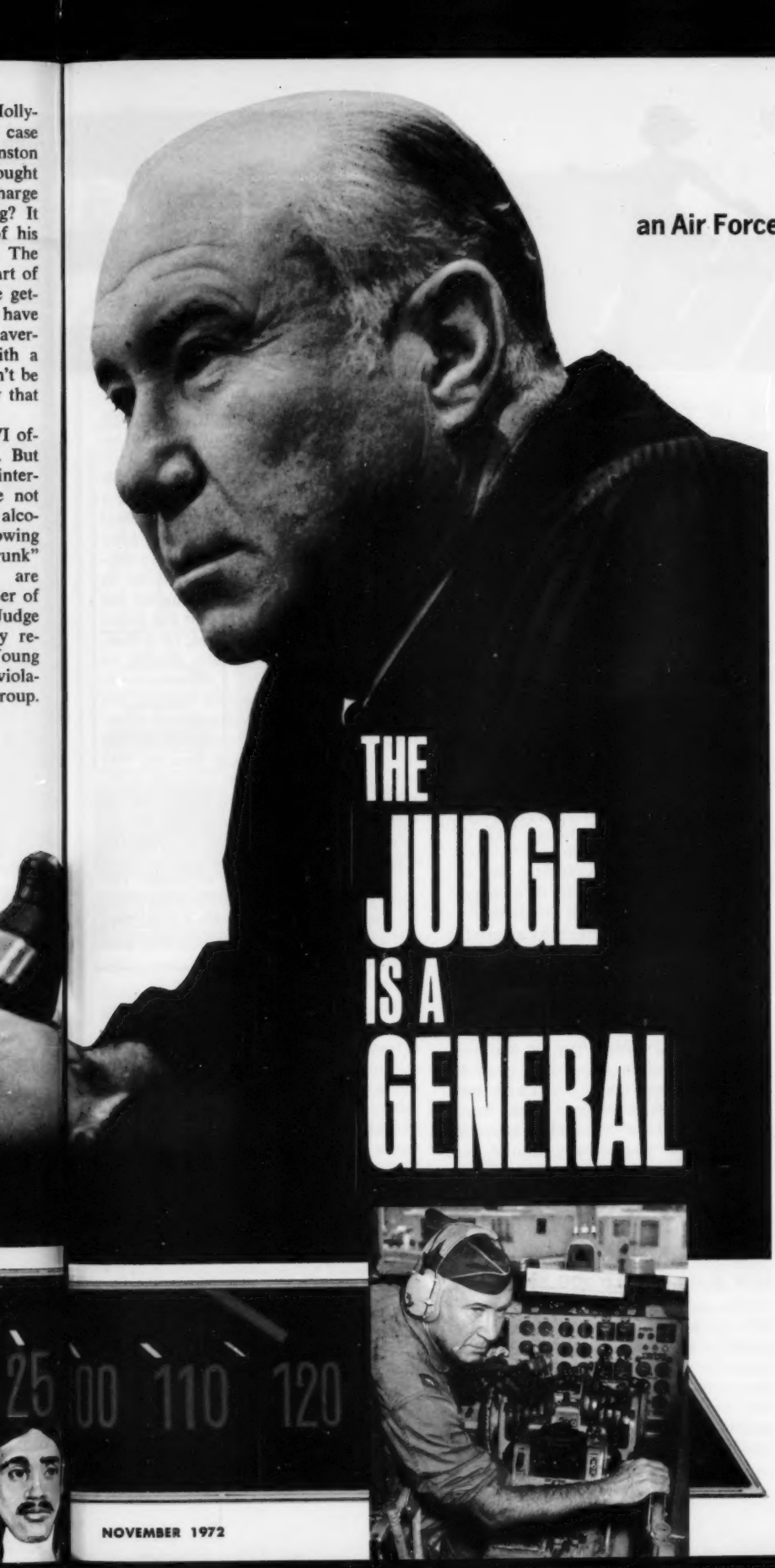
Like the fellow who claimed his car couldn't exceed the speed limit, other defendants appear before the judge with stories that would do credit to a Hollywood screen writer. Consider the case of the man who told Judge Johnston the blood-test evidence which brought his conviction on a drunk-driving charge couldn't be correct. His reasoning? It seems the man had sold a pint of his blood just hours before his arrest. The money was used to purchase a quart of wine, which he polished off before getting into his car. Since he didn't have as much blood in his body as the average person, he told the judge with a straight face, the test results couldn't be correct. Judge Johnston didn't buy that story, either.

The man was one of 8,000 DWI offenders tried in Atlanta last year. But the judge emphasized during the interview that "DWI" cases often are not related strictly to excessive use of alcohol. Traffic judges are finding growing numbers of another type of "drunk" appearing before them. "Drugs are showing up in an increasing number of accidents of the violent type," Judge Johnston said, "which are usually related directly to excessive speed. Young people are involved in this type violation more than any other age group.

(right)
Judge Edwin R. Johnston

(below, inset)
Brigadier General Edwin R. Johnston (USAFR)

Speeding by young persons between ages 16 and 25 is the most common offense on the court docket



THE JUDGE IS A GENERAL

by Capt Bill Warren
USAFR

An interview with an Air Force Reserve General who is also a traffic court judge

Most of them won't get on hard drugs, but will get on some sort of pill and maybe kick it with a swallow of beer or a drink of alcohol. This mixture makes them lose their perspective, reaction, and evaluative ability, so they are almost out on 'Cloud Nine.' Accidents under these circumstances are usually extremely serious." The judge illustrated his point with the story of a young motorist who drove straight into a bridge abutment for no apparent reason. Having blown his mind on drugs, he physically lost his head in the accident.

LAW ENFORCEMENT THE ONLY WAY

Despite the number of accident cases he has heard, Judge Johnston feels that the modern motorist is a better driver than his counterpart of earlier years, primarily because "it's getting to be more and more a case of you have to be a better driver to survive." He sees law enforcement as a tool to "make people do things to protect themselves; things you would think common sense would dictate automatically. Basically, a speed limit shouldn't be necessary. I mean, people ought to have enough sense to know how fast they can go safely. But they won't do it, and have to be forced."

Judge Johnston gives the following driving advice:

"If everybody would drive the way a pilot flies, by planning ahead and analyzing every little factor as it develops, we could cut accidents tremendously.

"Last year in Atlanta we had 31,000 automobile accidents. The safety experts say 70 to 80 percent of these accidents could have been avoided through alert, careful, courteous driving, and by keeping the cars in good mechanical condition."

SERVICEMEN IN COURT

The general doesn't see many military servicemen in his court, but driving while intoxicated is the most prevalent charge against those who do appear. Johnston feels that the serviceman is a better driver than the average citizen, primarily because he acquires more self discipline and maturity at an earlier age. But he cautions all drivers to consider the fact that automobiles are becoming more unforgiving of inattentive or unfit drivers, because of their construction and potential for high speed. ●

HIT AND

Your chances of being involved in some sort of an accident during your years as a driver are, unfortunately, quite high. Thus, knowing what the law requires of you in case of an accident is important, and is often not given sufficient thought by the average driver. In this column we will discuss the mistake made by some drivers; that of leaving the scene of an accident before satisfying the requirements of the law.

"HIT-AND RUN" OFFENSES

If or when you do become involved in an accident where damage has resulted, or injury has been sustained by another person, it would be well to know that the law requires you to stop. Even a person who doesn't know this will be held responsible, since ignorance of the law is not considered excusable.

You must also identify yourself, regardless of who caused the accident. In most states you are also required to render "reasonable or necessary" aid and assistance. If you fail to do everything the law requires in this respect, you may be found guilty of the criminal offense of "hit-and-run" driving.

In normal practice, criminal statutes are strictly interpreted. But since these particular statutes are designed to protect the public from hit-and-run drivers, they may be liberally rather than literally interpreted. However, they are not designed to make the accident itself a criminal offense; other statutes cover criminal intent or negligence cases involving vehicles. An accident which damages the operator's car and does inconsequential damage to a tree or post could come under the liberal interpretation and not necessarily be classed as a "hit-and-run" offense.

These stopping and identification clauses may appear to violate the constitutional guarantee against self-incrimination. However, a condition that goes with requesting the privilege of operating a motor vehicle on public roads is that the driver must stop and identify himself (or herself) after becoming involved in an accident. When applying for the license, a driver voluntarily waives this right.

If a statute making failure to stop and render aid a "hit-and-run" offense does not specify that the accident must occur on public roadways, it applies to accidents on private premises as well.

KNOWLEDGE OF ACCIDENT

Generally, you cannot be convicted of violating a "hit-and-run" statute if you did not realize you had been involved in an accident that caused damage or injury. However, if the circumstances were such that a "reasonable man" (sober and sane) would have believed a damage- or injury-accident had occurred, most courts would consider it "sufficient knowledge." So, if you ever have occasion to suspect you've hit something, you'd best stop and investigate the possibility. Although lack of knowledge of an accident can be used as a defense, lack of knowledge only as to the *extent* of the injuries or damages sustained is no defense at all. Since the statutes make it *your* duty to ascertain whether any harm has been done, you cannot rely on statements from others in this regard.

WHAT IF YOU WERE NOT AT FAULT?

The general rule is that if you are actively involved in an accident, you are required to stop, identify yourself, and so on—regardless of who might have been at fault. How the accident happens and whether you were criminally at fault, merely negligent, or without fault is secondary. Stopping and reporting an accident helps provide all available information necessary to establish the true facts.

HOW SOON SHOULD YOU STOP?

You are required to stop "immediately" (as soon as possible). One court stated: "A definite cessation of movement for a sufficient time to permit a person of ordinary powers of observation to fully understand the circumstances and to obtain knowledge of the accident is essential."

Failing to stop as soon as possible is seldom excused, even though no assistance could have been given. One court ruled that failure to stop immediately cannot be excused because of a hostile crowd gathered at the scene. Still another court ruled that stopping after an accident is not required when a motorist honestly believes he will be in danger of bodily harm by doing so; but he must report the mishap to the police within a specified time. And, of course, a driver who is physically unable to stop can be excused.

There are some situations wherein you may be a passive participant, and therefore not guilty of "hit-and-run" driving if you drive off; that is, if your car was stationary at the time and someone walked or fell against it. But, if you were a witness to the mishap, it would still be your moral responsibility to help the injured person. Also, it would be good sense to stop and contact witnesses. The same holds true if the accident is caused by someone jumping from your car, but not coming into contact with any part of it after jumping.

HOW TO IDENTIFY YOURSELF

Most statutes that require you to stop after becoming involved in an accident also require you to identify yourself to, or for the benefit of, any who might have sustained injury to themselves or damage to their vehicle. You should not have to admit to any blame (some insurance policies contain provisions to this effect), but in most states you must identify yourself to the other driver or his representative, to any or all passengers, to a public officer, or to a witness to the accident. Some states also require you to show your operator's license and vehicle registration slip, while others require identification only if requested.

In one case the court found the statute had been violated, even though the only person present at the scene of the accident was an unconscious victim. The conscious driver was found guilty of "hit-and-run" because of concealing, or

Ignorance of the law is not excusable

HIT-AND-RUN

the LAW & the AUTOMOBILE

attempting to conceal, his identity. If no one else is present, alive and conscious, leave a note in plain sight while you comply with the requirement of notifying the police.

In another case, the court held the statute had been violated when a motorist stopped after striking an unoccupied car but failed to leave a note. The driver did not attempt to locate the owner, and did not inform the police until 6 hours had elapsed.

DO IT YOURSELF

These statutes do not permit delegation of the clear and unequivocal duty imposed on the operator of a motor vehicle involved in an accident. So don't leave it up to a passenger, or anyone else, to comply with the requirements.

ASSISTANCE REQUIRED

Humanitarian statutes requiring a motorist to stop immediately and give reasonable and necessary assistance are usually given a common-sense interpretation; it would be impossible for a legislative body to dictate exactly what assistance shall be provided. Therefore, the driver is required to render all aid which at the time would appear reasonable to him or her.

In this highly insured age of rising accident rates, soaring medical and hospital costs, and impending lawsuits, a motorist must also be wary of overstepping the required bounds. If you "aid and assist" by removing an injured person from the vicinity of fire or possible explosion, or from the path of oncoming traffic, be careful how you do it; you could be sued later for having aggravated an injury, or for contributing to a death.

It's a hard thing to decide whether to risk a death or further injury by moving the victim of a head injury or broken back or to leave him exposed to other hazards. But you might one day be faced with such a decision. In that event, any error or blame on your part may have to be decided by the court. The only guideline we can offer is to try not to panic, and use all the knowledge and common sense you can muster at the moment.

If you are a qualified medic, or carry a First Aid card, you'll probably be covered by the "Good Samaritan" law which protects against malpractice suits. If not, your best bet may be to summon aid. But don't cause yourself to be accused of running away ("hit-and-run") when you are merely running—or driving—to a telephone booth. Calmly (if you can) leave your name, address, and license number on the other car's windshield or the injured party's person. This is not a very encouraging picture, but after the court weighs all justifiable circumstances against any possible charges, you'll probably be vindicated. And you'll feel much better for having helped someone out of a bad spot.

But, considering the vagaries of human nature, be careful about driving an injured person to a doctor's office or hospital. If the victim is hurt badly, an ambulance crew has the equipment and authority to do the job much more efficiently. And, if you provide transportation for a slightly or supposedly injured person, be sure that person signs the admission slip or other necessary paperwork. Numerous "good samaritans" have been required to pay such bills.

If you're not a medic, and don't have a First Aid card, don't sit idly by and let someone die unnecessarily while awaiting an ambulance. Lowering a victim's head can keep him from strangling or drowning in case of regurgitation, which often follows an injury; a properly applied tourniquet can stop a bloodflow that might otherwise prove fatal; and keeping an injured person warm could prevent fatal shock. If a person seems to be strangling, you might check to see if the victim's tongue has been swallowed. You can retrieve it with your finger. In fact, this may be that "moment of truth" when application of all of your first-aid training will be required to save a life. But, as stated before, be careful; don't cause further injury to an already injured victim. And take the necessary precautions on a busy thoroughfare to insure that you and/or the victim are not run over by an oncoming vehicle.

RESPONSIBILITY OF NON-DRIVERS

Some courts have held that a person may be found guilty of "hit-and-run" driving, even though not driving the car at the time of the accident. In such cases, guilt has been based on the fact that the accused aided and abetted the driver in commission of the crime by urging or ordering him to flee the scene.

Despite the unfavorable odds, there have been some who have lived out their lives without having been involved in any motor vehicle accidents. We hope you have developed your defensive-driving techniques to such an extent that your lucky odds will prevail. If not, we sincerely hope you'll keep these matters uppermost in your mind while you're driving. •

what should you do? (*SPECIAL)

You are driving in the fast lane in heavy traffic when a piece of dirt blows into your eye. You are forced to close your irritated eye, which waters profusely. What should you do?

A. Slow down, keep one eye on the road, and alternately open and close the irritated eye to wash and remove dirt.

B. Signal and ease right to stop, and park off roadway until dirt is removed from eye.

(Answer on page 11)

continued from page 5

BEHIND EVERY DRIVER

has time to lean over or fool around with a cigarette? Of course not, and neither do you—out on the highway."

Our conversation with Rex Schendley capped a very interesting day, and we left Ontario Motor Speedway that afternoon with great anticipation of returning for the Third Annual California 500 with a completely different insight into racing.

One thing for sure, a short time spent around the garage area before a race is not only fascinating, but gives visible proof of the important role of the mechanic. The extremes of precision and safety displayed by the crews reflect the great responsibility of lives in their hands. As one mechanic stated, "It [the hard work and extreme precision] all pays off; if it didn't, we wouldn't do it.

"And, you know, along with making this car run as fast and as long as possible, we have to make it safe. We are responsible for a fine young man with a wife and family. He is a good, cautious driver, and we have to be able to assure him the car underneath him is as safe as possible.

"I just wish the average driver would be half as cautious as this race driver, and would be just as concerned with the mechanical condition of his car. When something happens on the track, it is bad, but everybody out there accepted the known risks. On the highways, an awful lot of innocent people are involved in accidents . . . people who don't have any choice." •

Some drivers, including Bobby Unser, prefer a little more "sensible" mode of transportation off the track.

continued from back cover

MISS DRIVER

voir with the prescribed anti-freeze fluid. Check the arm of your wipers by operating them before you leave. • "Check the trunk for a good jack, and spare, plus lug wrench and jack handle. It's really smart to also carry flares and reflectors. They're inexpensive, and invaluable when you need them.

• "Pre-plan your trip to avoid driving extra long stretches, or driving late at night. It's best to keep your driving sessions around 8 hours. Plan to stop every few hours to stretch, refresh yourself, and make a quick walk around your car to check your tires, and trailer hookup if towing.

"The auto clubs offer free road-atlas-type maps that are easy to use because they don't open up into a huge piece of paper, as with regular road maps. Also, they are filled with useful information such as emergency procedures, driving hints, distance charts, and so on.

"I certainly hope all you guys have a great holiday. Just be careful not to push too hard on the way home. An accident or traffic ticket sort of destroys the holiday mood."

FOR BIKE NUTS ONLY

You should always keep a spare bulb with your bike; but, if you lose your taillight at night and don't have a spare, try switching the tail-light and brake-light leads.

Switching the leads is easily done on a bike with a hinged seat; but it is well worth the trouble, even if you have to remove a bolted seat.

Changing the leads should give you a taillight until you can get to a service station and replace the bulb (and get a spare). But, you will no longer have a working brake-warning light, so find out what's happening behind your bike before you decide to brake down suddenly.

It's also a good idea to mark the two leads with a dab of fluorescent paint so the wires can be located easily in the dark if the need arises. •

About Miss DRIVER (see back cover)

Melba Smith's sparkling good looks are matched with a cheerful personality. She is a student who plans a future of teaching and modeling. Besides modeling, Melba's interests include singing, dancing, swimming, and working with children. Melba's hometown is San Bernardino, California •

Answer to What Should You Do?

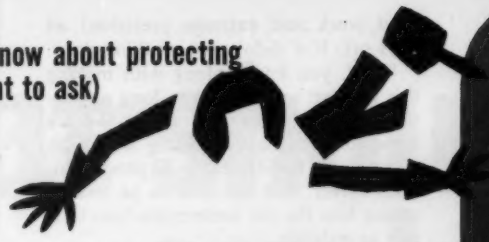
Your best selection is B. SIGNAL AND EASE RIGHT TO STOP, AND PARK OFF ROADWAY UNTIL DIRT IS REMOVED FROM EYE.

This situation is similar to something going wrong with your car. Just as you would stop and fix the car, you should stop and solve the problem with your eye before you continue. Also, it is important to realize there are physical limitations when you use just one eye. Your depth perception changes. To demonstrate this, close one eye sometime as you are walking down a sidewalk and notice how flat everything appears. This difference in perception could give you trouble, plus the blinking would limit your ability to focus with one eye. Besides, if you were to continue driving with this problem, chances are you would be paying more attention to the eye than the road.

✻ *If you look closely at the photograph in this feature you will find some unsafe practices, plus several other discrepancies. We challenge our readers to find these items and let us know what they are. The names of readers who come closest to itemizing the errors will appear in a later issue. Those who tear off the page for inclusion with their entry will be disqualified.*

By the way, the DRIVER staff found 15 things "wrong" in this photo. Perhaps you can find more. •

What you've always needed to know about protecting your brain (but maybe didn't want to ask)



Keeping It All Together

Technical assistance courtesy Dr. Romulus von Hazmourg, USAF School of Aerospace Medicine

Many motorists, particularly cycle riders, have never really thought about why there are so many vibes among safety types about wearing helmets when riding, and safety belts when driving. Well, a lot of it has to do with the urgent need for preventing damage to the head in the event of an accident.

It's pretty obvious that in an auto accident, occupants not using restraining devices will be thrown about and smashed against unyielding surfaces. But with the motorcyclist, even a low-speed accident is far more hazardous. What gives? Why is the head so susceptible to damage? It appears to be tougher than other parts of the body. Some might even think of it as being a fairly solid mass.

DRIVER decided to talk to a man who knows some of the answers, yet is not down on motorcycles. In fact, Dr. von Hazmburg is an avid motorcyclist who rides almost daily with great enjoyment. He knows what it's like to ride on the open road, free and unhelmeted with the wind rushing through his hair. But he also sees it from the other side and knows riding without a helmet, or driving unrestrained by safety belts is not worth the risk. Here's why . . .

THE HEAD IS DIFFERENT

There are certain aspects of the head that are really far out and unique. One is the inability of brain cells to heal or regenerate. In other words, damage to the brain (the center of man's physical being) is not repairable. Skin and muscle lacerations can be sewn together, bones repositioned, and severed blood vessels reconnected, but damaged brain cells can never be repaired, by ANY means.

As if in realization that brain damage is PERMANENT, nature provided a well-designed skull which acts as a brain cradle. It is not easily fractured by the bangs and bumps of ordinary hazards. The skull bones of an adult are thick and unyielding . . . to a point. However, skulls will not withstand most impacting forces resulting from the speed of travel of current motorcycles and cars. In such situations the skull bones will break and even fragment when forced against such objects as pavements, bridge abutments, windshields, telephone poles, and so on.

You might think that, even though the skull is broken or cracked, maybe everything might still be okay after some medical attention. Like, isn't the brain sort of a tough, rubbery mass? Well, it's just not that way at all. The brain really is quite soft, and overlayed with delicate blood vessels and connective tissue. It can be moved gently but is easily damaged.

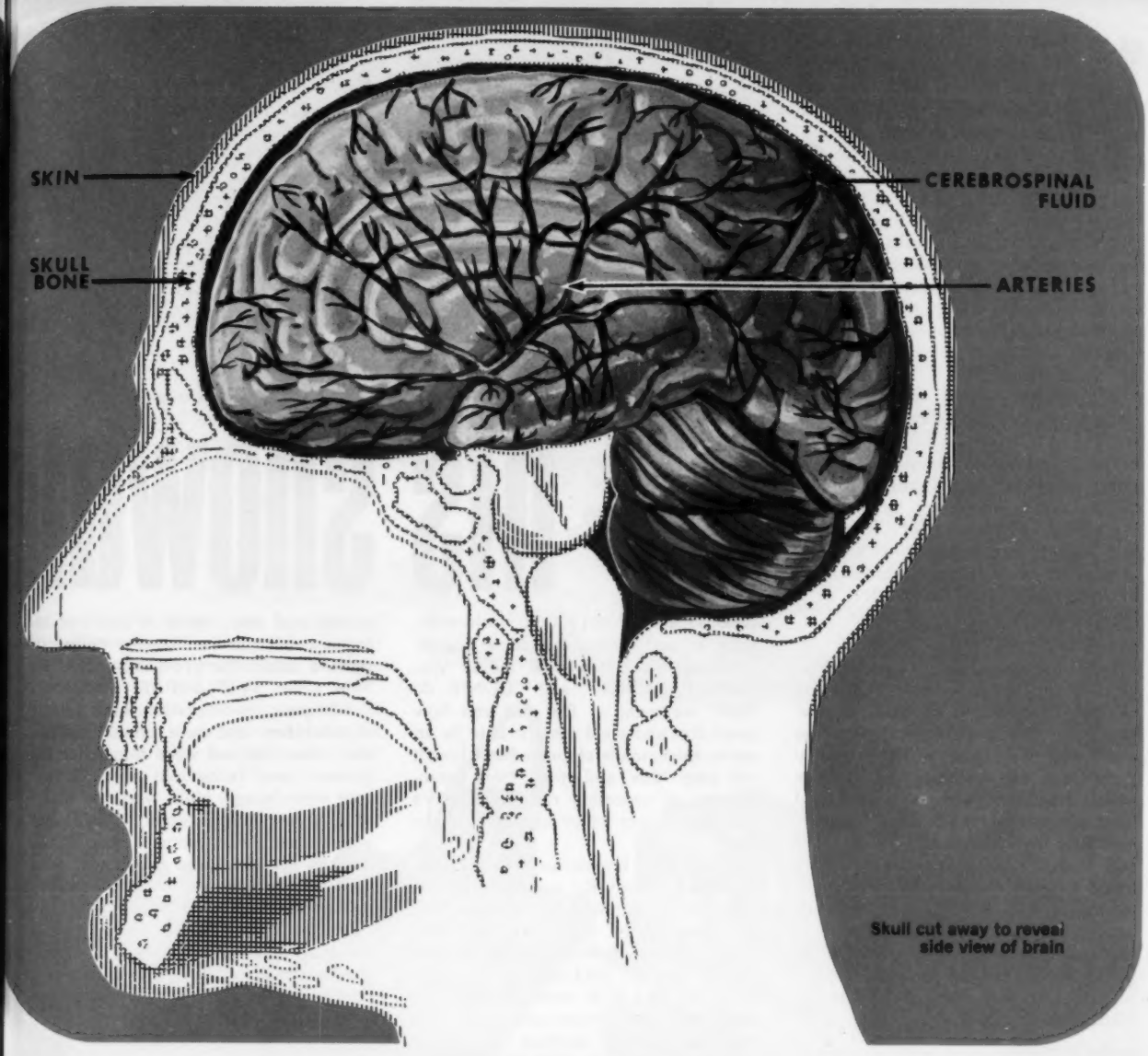
YOUR BRAIN "FLOATS"

The brain is cushioned to some extent by its arrangement in the skull where it is surrounded by a layer of cerebrospinal fluid. Weird as it may seem, it is able to move about inside the skull, and can be thought of as sort of "floating." Herein lies another danger. If a head propelled at slow speed strikes another object, natural safety features such as thick scalp tissue and bone, and the hydraulic cushioning of the cerebrospinal fluid, will safeguard the brain. But if the head is moving very fast, the "floating" brain will slam into the inside of the skull. This situation is comparable to the momentum which carries an unbelted auto passenger forward into interior structures after the motion of the car has been abruptly halted.

When a severe deceleration or acceleration causes a brain to slam into the inner skull, the brain tissue may swell. This swelling is a serious matter because there is little room for expansion. If a brain is put under pressure in this manner, or as a result of an outpouring of blood through damaged blood vessels, the result is often fatal.

Blood can accumulate quickly inside an injured (but not necessarily fractured) skull, because the brain is supplied with approximately ONE SIXTH of the blood pumped by the heart. Also, the blood vessels of the brain are different from the run-of-the-mill type found elsewhere in the body. Instead of constricting after being cut or torn, they tend to remain open. They lack the elasticity found in other vessels, so tend to bleed easier. And, of course, it is not possible to stop the bleeding by applying pressure as in the case of a cut arm or leg.

So, the only way to stop the bleeding and avoid the fatal results of pressure build-up within the skull is through delicate brain surgery. Sometimes after a severe blow to the head a patient will appear to recover and



Skull cut away to reveal side view of brain

not require further attention. When this happens, it is not unusual for the symptoms of hemorrhaging to show up at a later date. The brain may have been bruised so that a slow blood seepage occurs which must be arrested surgically if possible.

CUT A WORM IN HALF

In certain animals, such as the earthworm, the nervous system is somewhat decentralized. In man this isn't the case. Even though nerves are spread to every part of the body, the control of all nerve activity and body functions is centralized in the brain. This is a lot of power and responsibility for such a small piece of the body (approximately two percent of total body weight). This centralization coupled with the delicate nature of the brain, and the permanence of brain damage, make this organ deserving of maximum protection. Most motorcyclists know they run a greater risk of accident than the auto driver, due in part to the relative "invisibility" of a cycle to other motorists and the lack even of sheet-metal protection. DRIVER feels that if a motorcyclist understands some of these unusual facts about the brain, and acknowledges the high-risk factor of riding, he will wear a helmet ALL THE TIME HE RIDES. We hope so. ●

"What about MY helmet?"

"THAT DARING YOUNG MAN ON... his snowmobile"

With the coming of the snows, many military people will have stored their two-and four-wheeled, fair-weather recreational vehicles.

But those stationed in the less temperate zones no longer have to go into "hibernation" and dream longingly of balmy weather that will bring back their dry trails and roadways. Soon after a suitable blanket of snow covers the landscape, these intrepid sportsmen and their no-less-intrepid dependents can be seen skimming over the white hills and plains in unrestrained ecstacy.

The strange mounts ridden by this fast-growing breed of speed enthusiasts are called *snowmobiles*, a clever arrangement of metal, plastic, rubber, and glass, propelled by an engine-driven, endless, track augmented by steerable front skis. The riders exhibit a lack of fear (sometimes translated as innocence) of winter's perils that is exceeded only by their disdain for the comfort of a ruddy hearth.

OLD HAT

While snowmobiling has been a popular American sport for only 8 years or so, motorizing skis is not really a new idea. The first experimental machine was tested 'way back in 1926; merely a modified car featuring double rear wheels tractioned with hold-fasts, and front wheels replaced by skis. Lumbermen later used heavy-duty machines to pull sleds loaded with logs, trappers found a lighter version useful in hauling their furs to market, and game wardens used them for patrolling vast, snow-covered areas. Another little-known fact is that ski-equipped, armored half-tracks were used in some snowy battle areas during War II.

DOUBLE-THREAT

This once slow-moving hybrid finally evolved into the roaring, screaming speedster of today, some of which can travel well in excess of 100 mph . . . and therein lies the real purpose of our story.

Along with mass production of these fun machines in a price range our troops could afford, came the inevitable problems concerning preservation of Uncle Sam's manpower investments. These included not only the additional hazards to military personnel, but the problem of keeping service families intact. This double-threat stems from the practice of inviting wives, children, and other dependents to join their sponsors on trail and cross-country rides, and outings, and even in speed competitions.

CHALLENGE MET

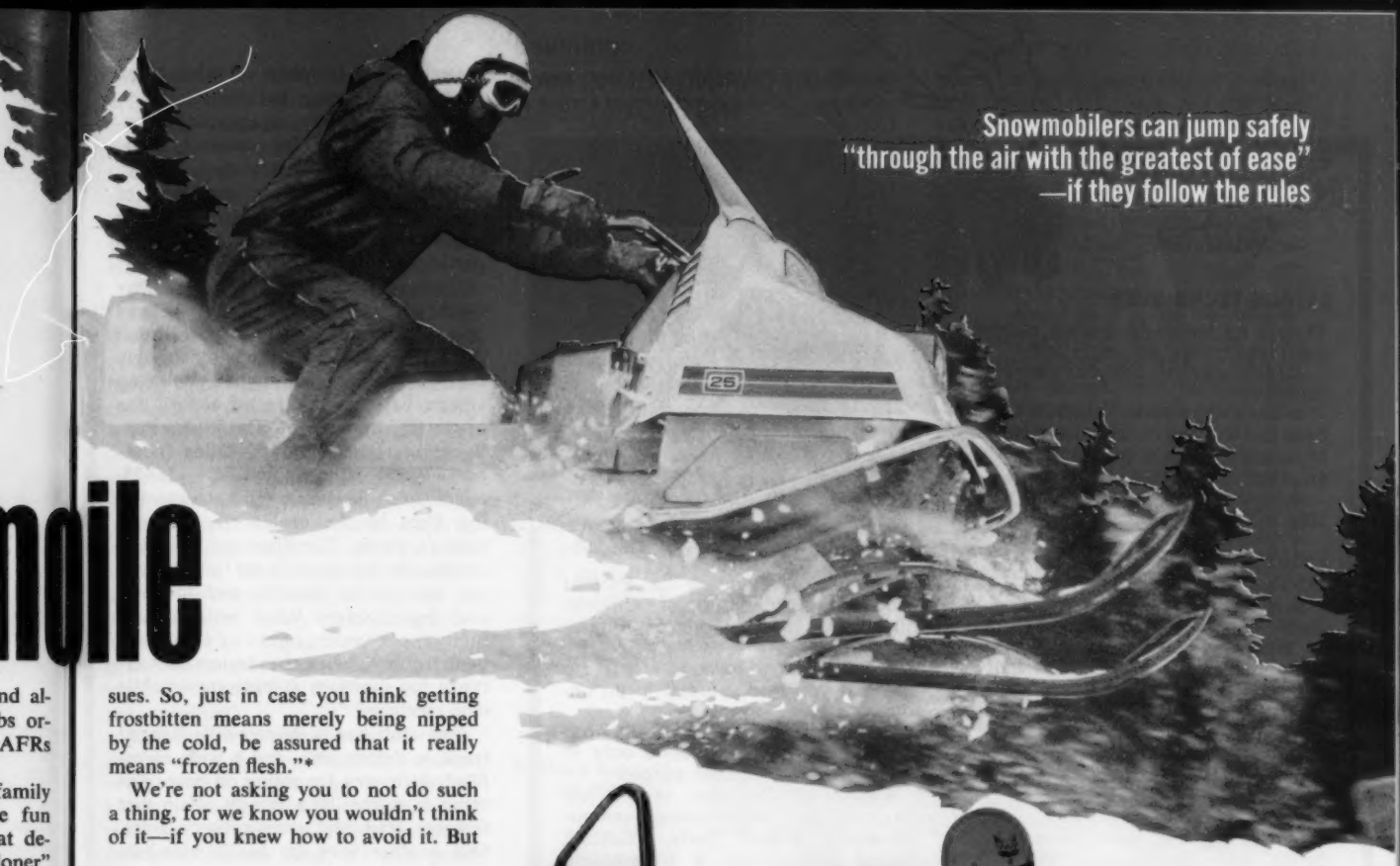
To meet this challenge, Armed Services safety personnel and safety publications staffs go into action, world-wide, prior to and during the snow season.

Instead of starting off telling you, "DON'T do this!" and "DON'T do that!" we want to first tell you how much fun and good sense it is to be an active snowmobile clubmember—how it will keep "this" and "that" from immobilizing or canceling out the family's breadwinner, or other members of the clan.

The Nov '72 Explosives/Ground Safety Officers' Study Kit contains a model copy of an automotive club constitution that can be adapted to suit your needs. "More on Forming Automotive Clubs," Jan '72 DRIVER, gives a rundown on all USAF instructional directives for forming base-sponsored clubs and using base facilities for speed events. As stated in AFR 34-4, the Air Force recognizes that such activities are valuable in furthering mechanical skills and operation of equipment. The reg also authorizes base commanders to provide support. This, of course, is just another way of saying proper maintenance and operation will help keep the serviceman in a duty status and his family intact. Also that, IAW AFR 87-3, your commander may make Air Force installations available for snowmobile and other speed events, and allow use of base facilities by clubs organized under the provisions of AFRs 34-4, 176-1, 34-67, and AFP 30-3.

It's great to talk with these family clubmembers and hear about the fun they have. But we were somewhat depressed upon being told of a "loner" type who thought clubs were the bunk; such as our Tech Editor's acquaintance who snowmobiled, alone, across an unmarked snowfield and caught a strand of barbed wire across his Adam's Apple. And of the kid who bundled up and took his unsuspecting, non-clubmember daddy's "Sno-King" out in what the thermometer on the porch said was a comparatively safe 10°F. He soon found himself heading down a slope into a 25-mph wind—with no goggles or face protection. Had he known a 25-mile wind would produce a "chill-factor" equivalent to *minus* 29°F, he might have worn a face mask or goggles and a woolen scarf— or stayed at home.

Fortunately, the boy was found in time to treat his frostbitten face, nose, and ears. Had he not received early treatment, parts of the flesh would have died, leaving permanently damaged tis-



Snowmobilers can jump safely "through the air with the greatest of ease" —if they follow the rules

noile

sues. So, just in case you think getting frostbitten means merely being nipped by the cold, be assured that it really means "frozen flesh."*

We're not asking you to not do such a thing, for we know you wouldn't think of it—if you knew how to avoid it. But perhaps you can pass this knowledge on to some less experienced troop. Those stories are typical of the many reasons the services recommend riding only with other club members and using the Buddy System. Each rider checks another for the spotty whiteness that signals the dreaded frostbite.

(left) **The pro drivers** who race sleek, 150 mph V-8 snowmobile dragsters such as this advise you to know what you're up to. . .

. . . **even when** riding tiny two-cycle machines such as this. (right)

Your young passengers no longer have to wear over-sized adult safety helmets. Helmets of the highest standards are now available for children of ages 4 to 11.

During his long-to-be-remembered visits and rides with snowmobile clubmembers of the Grand Forks AFB "Blizzard Lizzards," Kinchelo AFB's "Sno-Pilots," and K. I. Sawyer AFB's "Snow-Cats" (Nov '70 DRIVER), our Feature Editor picked up a wealth of information and don't-do-it-by-yourself advice. We've also received reams of

continued

* *Should you manage to get frostbitten (it takes just a moment, and you'll know it when numbness and spotty whiteness sets in), cover the affected part snugly with wool, get indoors ASAP, wrap the part in a woolen cloth as hot as the normal hand can stand or soak in water (again as hot as the normal hand can stand) for short periods until your whatever is warm again. And be sure to handle the injured part carefully to avoid further damage. Then see a doctor.*

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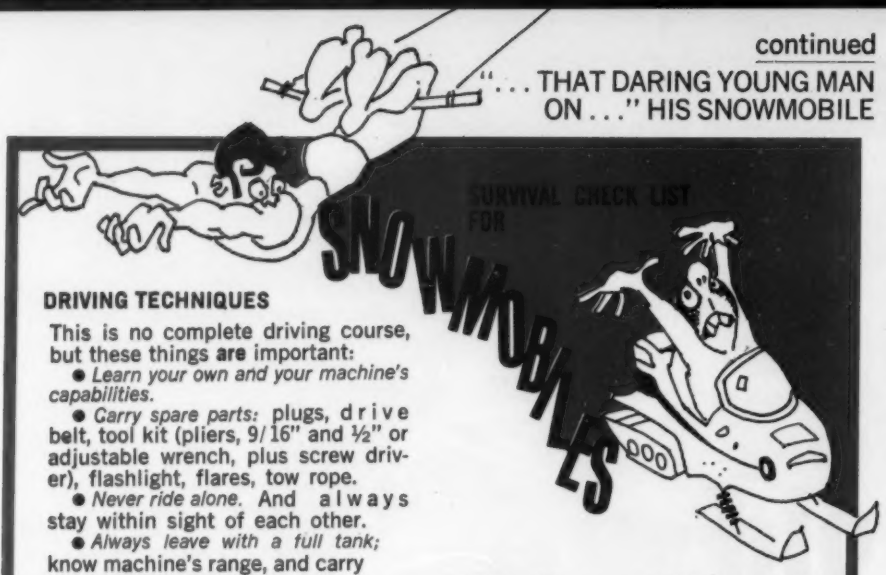


DRIVING TECHNIQUES

This is no complete driving course, but these things **are** important:

- *Learn your own and your machine's capabilities.*
- *Carry spare parts:* plugs, drive belt, tool kit (pliers, 9/16" and ½" or adjustable wrench, plus screw driver), flashlight, flares, tow rope.
- *Never ride alone.* And always stay within sight of each other.
- *Always leave with a full tank;* know machine's range, and carry extra gas if necessary.
- *If your machine has an electric starter,* carry wiresnippers, tape, fuses, and know how to start the engine by hand.
- *Children are especially vulnerable;* so be particularly careful while they're riding with you, and while you're teaching them to drive. Lengthening the cable so the throttle is only 25% engaged will provide a much safer learning period. Warn the kids against speed, overconfidence, and carelessness. Be sure they know the rules and techniques for safe operation . . . and never let them snowmobile alone.
- *Throttle control is of utmost importance;* too much and you overshoot your corner . . . too little and you get bogged down.
- *Brakes and stopping can be tricky, too.* Most machines have disc brakes operated by a lever on the left handlebar. They work well, but only stop the track. Apply them too quickly and you have an expensive tobbogan under you.
- *Don't tailgate;* it's three times more hazardous than with a car.
- *Moonlight riding is dangerous.* Check your lights before you take off; any hunter or combat crewman can tell you how far you can miss a moonlit target.
- *On a trail ride,* the leader should know the way so he doesn't lead the formation astray; and there should be a "tail gunner" to see if anybody gets stuck or falls off, and to make sure that nobody gets left behind.
- *Use a spotter* when crossing highways or streets; then cross one at a time. Remember, traffic ALWAYS has the right-of-way.
- *Avoid crossing rivers and lakes at night.* A majority of snowmobile accidents occur after the sun has gone down. And don't break trails—there are lots of hidden barbwire fences and guy wires out there.
- *Jumping snowbanks is risky* if you don't know for sure what's on the other side . . . could be another snowmobile, a group of children playing, or the middle of a busy road.
- *Stay on known trails.* Reduce speed if you find yourself in an unknown area.
- *Snowmobiling and skiing are a bad mix.* Drive your snowmobile only in areas provided for that purpose.
- *As for drinking,* one big fellow we met (he shall forever remain nameless) stated flatly, "Getting loaded and driving a snowmobile doesn't work; it'll spit you off every time." We assume he learned that from firsthand experience.

MAINTENANCE

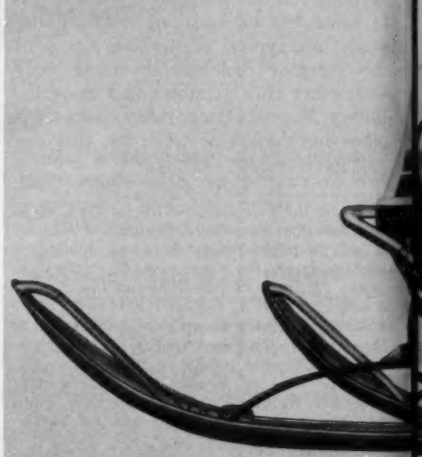
Constant maintenance is a must, since snowmobiles are subjected to rough treatment while bouncing over trails, climbing hills, and such. Check the following items without fail before you mount up:

- *The throttle,* usually operated by your right thumb, is especially important. Lube it and keep it adjusted. Install a kill button. . . . otherwise, you're in big trouble if the throttle sticks.
- *Make sure everything's tight;* do this at least once a week, if you ride three times or more. Check belts, nuts, bolts, and cables . . . and don't ever forget the ski bolts.
- *Check skis for cracks.*
- *Be sure your ignition system is in top shape.* You'll be depending on it a lot.
- *Clear the treads or track.* This is very important. Just lean your machine over and rev up the engine. The track will spin and throw off any snow that might have balled up in or under it. When riding in packy snow, this should be done every half-hour or so. Snow could lock up your track and, as with the locked brakes, you'd have nothing but a big sled under you.
- *Test your brakes before you take OFF . . .* you'll need them.

material from members of other clubs, professional racing enthusiasts, snowmobile and safety equipment manufacturers, and the International Snowmobile Industry Association (ISIA). We'd like to pass on pertinent parts of it to those involved; also to those who might be considering an invitation to participate in this exhilarating sport.

Various manufacturers offer many types of "non-freeze" hard-top head gear and other life-saving apparel, and the professional racers advise strongly that you know exactly what you're up against before you take off aboard one of the tiny "monsters." The ISIA's Public Affairs Director, 5100 Edina Industrial Blvd, Minneapolis MN 55435, offers safety literature, and snowmobiling films to the dealers through the manufacturers. The films are produced specifically for showing on local television stations, in theaters, and to clubs and organizations. What better opportunity for the safety officer or club president to check with the dealers and arrange for showings at base snowmobile club meetings?

One club has a quarter-mile banked track, a slalom area, and a wide snow-filled ditch area for riding on base. Another is primarily a family affair that features trail and cross-country rides. Still another uses the base's nine-hole



Cutaway drawing shows engine-chain-sprocket-endless track arrangement that makes the snowmobile go. Some models have a double track and ski set-up. Handling characteristics vary from model to model; so, when buying, renting, or borrowing a snowmobile, first get an explanation of how to handle the machine —then take it real easy until you know exactly what to do.

golf course for their main recreation area, and the wilds of upper Michigan for family outings and other fun trips. Some clubs work closely with local Chambers of Commerce, Boy Scout units, fire departments, and law enforcement agencies in setting up Grand Prix events, slaloms, relay races, and other competitions.

Snowmobile clubmembers have their share of the fun, and more, and the "safety of the pack" allows them more of a chance to have at it again the following snow season. What the newcomers lack in skills during the competitions, they make up in enthusiasm. The members look after each other, so they seldom get into unsolvable troubles with their machines or the weather. As one dedicated spokesman declared, "Warm, one-piece, lightweight snowmobile suits, special mitts, boots, and head-face-eye-and ear protection, along with using the Buddy System, makes the difference between enjoying yourself and freezing to death." And they watch their kids like hawks to be sure they don't get into any risky mischief.

Snowmobiles aren't allowed on roads, except when crossing them, but unconvinced riders continue to get hurt or killed in snow-packed lanes. Even when pushing, carrying, or riding a snowmobile across any road, it's only good sense to use a spotter (see photo). Others, such as the previously mentioned "loner," ride into cables, trees, and other unyielding objects. And, *some even get their kicks from riding between railroad tracks.* No GIs have been killed in that manner, yet, but we'll remind you here that your panther's scream will drown out the sound of any train whistle.

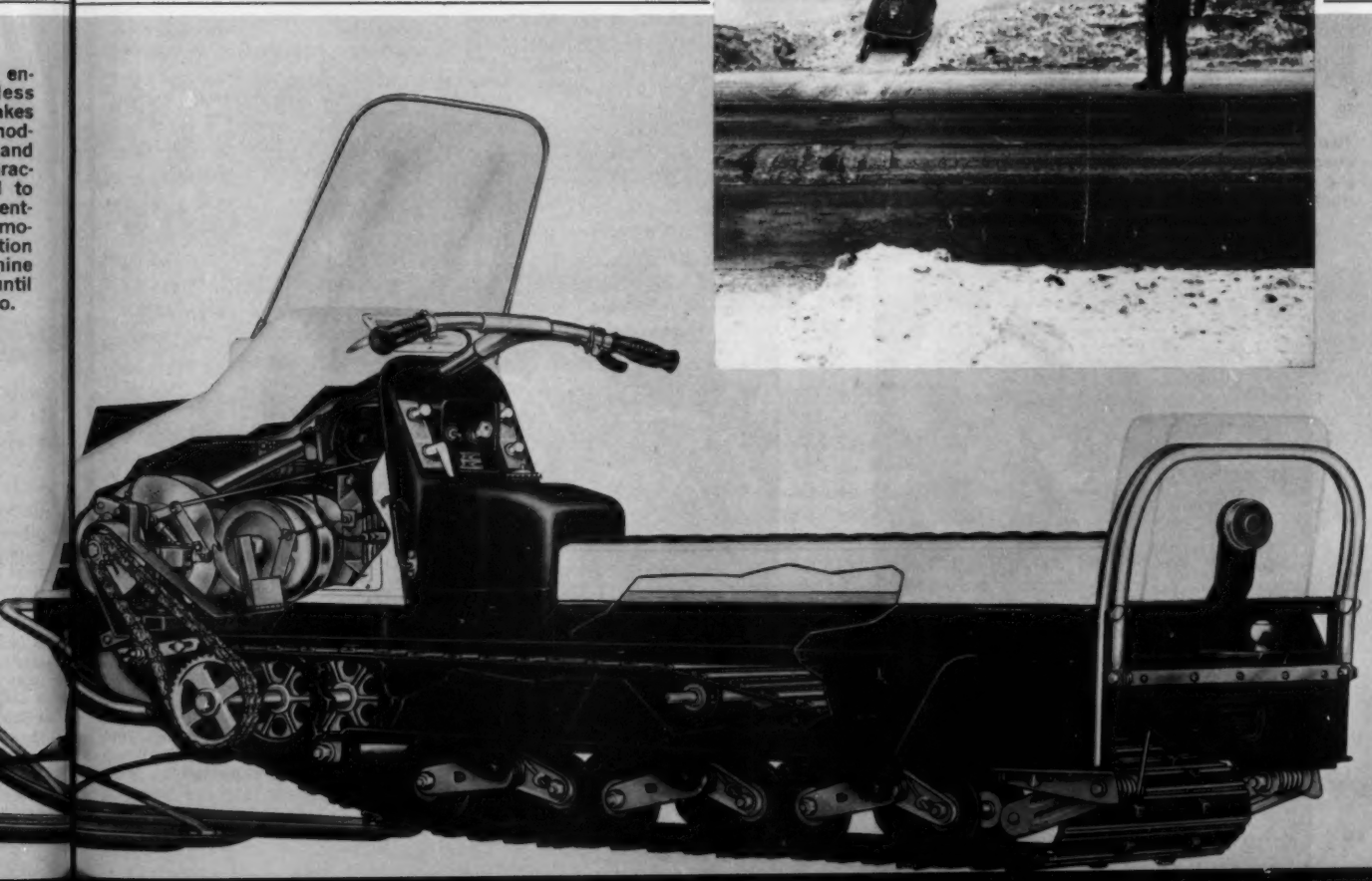
The records prove you are better than average drivers; and you should be, considering the training and checkups you get are not available to most civilians. So, it's a simple matter of learning all you can about your snow machine, following the "Rules of the Road," complying with the local vehicle codes, and using maximum common sense.

Just remember that our prime reason for publishing this story, other than to point up the gobs of fun you can have, was to highlight the point that snowmobiling is no sport for the "loner." You have to go in packs, or at least in pairs, to beat the ever-present threats posed by a malfunctioning or mishandled, screaming banshee *and* Old Man Winter.

To keep the fun part from being overshadowed by "DOs" and "DON'Ts," we've boxed off the detailed instructions. After you've read this far, we're sure you'll not only want to read the snowmobile check list. but to digest and memorize its contents.

You should have gotten the idea by now that DRIVER recommends membership in a base snowmobile club. If your base doesn't have such a club, and you'd like to form one, refer to the directives listed above, get with your base legal people, use the model constitution and by-laws in the Nov '72 Safety Officers' Kit, and coordinate the matter through your command channels. If your safety officer doesn't have a copy of the model constitution and by-laws, we'll send you, and/or him, a copy. Just write Editor, DRIVER magazine, AFISC/SEDD, Norton AFB CA 92409. Have fun! •

Spotters assuring safe crossing.



MOTOR SPORTS CLUB NEWS

Varied, unbelievably rugged terrain made Silver 200 unquestionably the most grueling off-road motorcycle competition ever held in Japan.

Longest Off-road Competition in Japan

Two of the men who helped make Silver 200 a great success were (right) TSgt Vern Hassell, president of the monumental undertaking, and SSgt Gilbert Craddock, NCOIC of Mito Bomb and Gunnery Range.

(USAF photos by TSgt Dave Sheeder, 475 ABW)

Pretty Hiroko Hori was the only female entry in this "he-man's" race. Her 3 laps over the rough 12-mile course was more than she expected on her "junk" 90cc bike.

JAPAN

Silver 200, held this year at the U.S. Air Force's sprawling, 3000 acre, beachside Mito Bomb and Gunnery Range in Japan, was much more than just another motorcycle race. It was a monumental undertaking, jampacked with many exciting "firsts" and loaded with the stimuli that put that extra zing into any sporting event.

Silver 200 was the largest and longest off-road competition ever held in Japan, and was considered by many to have been the sporting event of the century . . . a first for the Land of the Rising Sun.

The event was co-sponsored by Japan-based USAF motorcycle clubs and Japan's *Motorcyclist* magazine, with all proceeds from riders' entry fees being turned over to Tachikawa's Kanto Benevolent Association (KBA) in the name of the 25th Anniversary of the United States Air Force. The association later distributed all funds to various Japanese/American charities. Colonel Thomas R. Bevivino, 475th Air Base Squadron Commander, Tachikawa AB, accepted the check for nearly $3000, along with a souvenir program from Silver 200. Officials presenting the check were Silver 200 President TSgt Vernon Hassel, 610th Military Airlift Squadron flight line mechanic, and Mr. Yumio Yaki, Editor of *Motorcyclist* magazine.

And they're off! Some 700 Japanese and and American motorcycle racing buffs participated in Silver 200—and only 10% finished. Many consider it the sporting event of the century in Japan.

The winner of the grueling 15 laps over an unbelievably rugged 12-mile course in 90-degree temperatures was as unexpected as snow in July. Terukatsu Katsumata, a 21-year-old truck driver from Shizuoka Prefecture, pushed his Suzuki over the varied terrain in a record 3 hours, 17 minutes, and 10 seconds to cross the finish line 18 minutes ahead of his nearest competitor.

Noted motorcycling experts expected the large factory camps, which came manned with pro riders and equipped with truckloads of cycles and spare parts, to capture the top slots. But their expectations dwindled as the bikes fell out because of mechanical difficulties as they plowed through chest-high elephant grass, knee-deep sand, shallow lakes, and hilly wooded areas.

But, affording motorcycle manufacturers an opportunity to compete in a long-distance off-road race was not the prime reason for the event. As Silver 200 President TSgt Vern Hassell explained, "First and foremost, it was designed to raise money for charity, in commemoration of the Air Force's 25th Anniversary. And," he added thoughtfully, "it also helped mark the more than 2 decades of friendship between Japanese and American motorcyclists."

Although Japanese riders dominated the competition, 8 Americans came across the finish line after 630 of more than 700 starters faltered by the wayside. The first American to get the checkered flag was Tony Cornell, 20-year-old son of Roman N. Cornell, civilian employe at Camp Zama, Japan. Only 8 of the 600 novice riders finished ahead of him. This young cyclist finished 25th overall, and 9th in his class. He said, "On the first lap I was almost wiped out when I hit a wave on the beach. But, when I came through the checkpoint on my 10th lap, I knew I could finish. However, I surely didn't think I'd be the first American to make it through!"

Other Americans who finished included Robert Dennison, Jerald Hart, Ron Weir, David Ross, Marvin Van Tassell, and Eugene Wach, all from Yokota AB, and Gene Gaddy from Tachikawa AB.

Another unexpected element of Silver 200 was the sole female entry, Hiroko Hori, a 23-year-old secretary from Tokyo. Although she completed only three laps, Hiroko did better than she —or anyone else—expected. It was her first long-distance race on what she called her "junk" 90cc bike.

Despite the punishing course, there were surprisingly few injuries. Only 13 of the 630 Japanese, and one of the 73 Americans required medical treatment. Helping provide that service were four Pararescuemen from the 36th Aerospace Rescue and Recovery Squadron headquartered at Yokota AB. They were TSgt Gary Bryant, Sgt David Mueller, A1C Steven Tompkins, and A1C John Franklin.

It was a great event that tested both man and machine. Silver 200 President TSgt Hassell told of a report he'd received that a man had been killed. "I immediately went out on the course to check it out, and about half-way around the 12-mile track I saw a Japanese rider lying beside his bike. But he wasn't dead —just dead tired. The man was sound asleep!"

Should other such cycling affairs be planned, Silver 200 will be a hard act to follow. Sergeant Hassell stated emphatically, "My only hope is that it will become the premiere event of future off-road motorcycling in Japan." •

TSgt Dave Sheeder
OI, 475 ADW (PACAF)
Yokota AB, Japan

TAIWAN

Taiwan is certainly one of the last places you'd expect to find an active sports car club. The speed limit in most rural areas is a mere 60 kilometers (37.5 miles) per hour, and the roads are crowded with everything from large trucks to hand-drawn carts. "Premium" gas is low 90-octane, and replacement parts must be purchased locally at high prices or ordered through the APO.

In Oct '71, SSgt Ron Knight, a dental technician at Taipei Air Station, discussed this and other problems with Lt Col Craig, Station Commander, and got the green light to organize the Taipei Area Sports Car Club. The constitution was soon approved and the club elected a full slate of officers, with Ron Knight as President. The members represented commands throughout the U.S. Taiwan Defense Command and Shu Lin Kou Air Station . . . and the only sports car club in Nationlist China was finally in business.

Work was begun on a comprehensive safety inspection program, and on adapting Stateside Solo II and rallye codes. Classification of vehicles, however, proved to be a sore spot, since most of the members drive Datsun 240Zs, which fall under C Production. The few cars in D, E, and F Production classes often

continued

Sports Car Club . . . In China!

had no competition, so a new system of awarding trophies was invented.

An unused airstrip near Shu Lin Kou AS serves as a track for Solo II events, such as gymkhanas and auto-crosses, and a Stateside insurance company covers all TASCC requirements at a modest cost. The old dirt airstrip gives event sponsors the freedom to plan courses combining both tight and open sections, to provide a more complete test of a driver's ability without compromising safety. The strip has no obstacles, so a driver going into a turn too fast has unlimited "escape" routes and can usually take a wider line without losing much time. And the lack of traction on dirt allows clutch "popping," four-wheel drifts, and handbrake turns that could spell mechanical, financial, and personal disaster on a paved surface. In the broad maneuvering area of the dirt strip, the TASCC members can simulate high-speed driving conditions without ever exceeding second gear or endangering themselves and their hard-to-fix vehicles. The longer events are known as "Mini Trans-Ams," with between 20 and 30 drivers entering each event. The club signed up a number of new members as far away as Ching Chuan Kang AB.

On the debit side of the ledger are the complaints that the dirt (actually dry clay that seeps into every crevice of a car) is too hard to clean up. And, the roads to the old airstrip are so crowded that few spectators will drive

Few spectators brave the roads to the strip. "DANGER. DO NOT ENTER."

them. Rallyes, too, have presented a problem on Taiwan. Since most road-signs and advertisements are painted in Chinese characters, which only a few clubmembers can read, gimmick rallyes have been extremely frustrating. And, when rallyemasters set up their own landmarks, the locals create even more confusion by removing them before the course can be run. Road construction, too, can mar the best-planned rallye; roads that are in passable condition one day may be unexpectedly blocked the next.

Last August the club sponsored its first time-speed-distance rallyes. The nearest roads with reasonably light traffic were on Uang Ming Mountain, to the north of Taipei. Most of the area is a park, blanketed with a 30-kilometer (19-mph) speed limit; but the participants enjoyed running the course—and watching the slow-moving mountain scenery.

The club has presented safety lectures at Commander's Calls, and has been encouraged to set up a driving training course designed to prepare our people for the hazardous road conditions on Taiwan. Tim Thompson, stationed at Ching Chuan Kang AB, is currently developing such a course, based on his experienced with SCCA-sanctioned courses in the States.

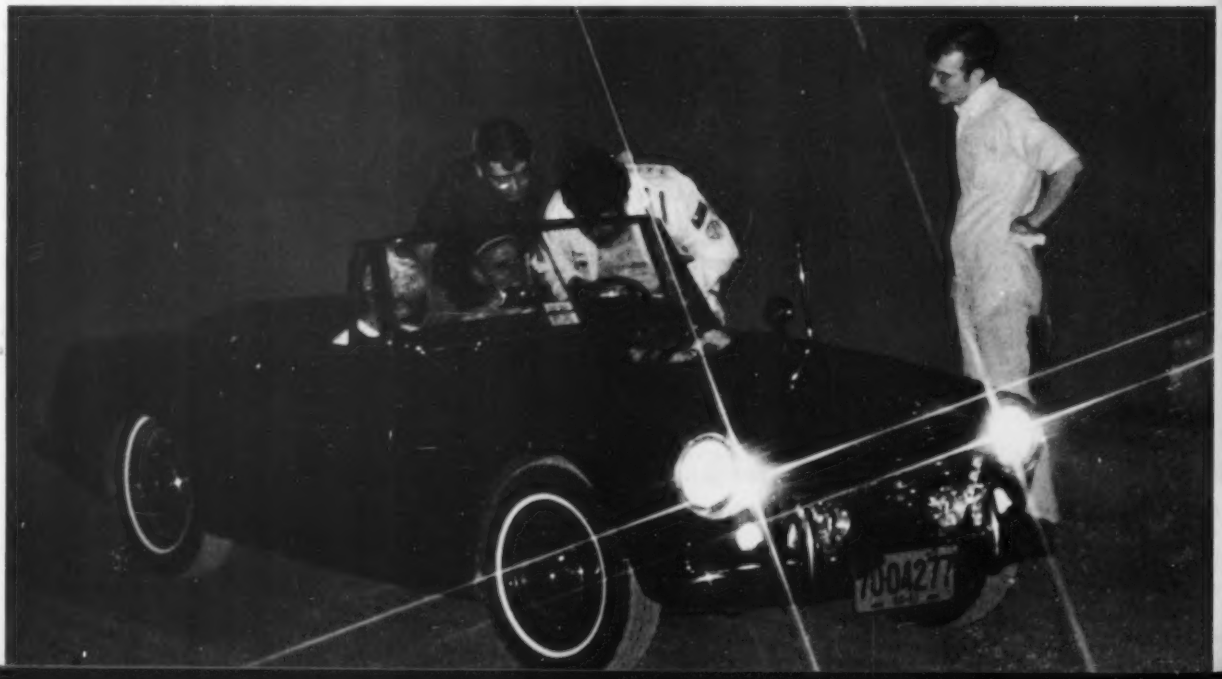
The club is now working toward island-wide participation, with events at CCK AB and long-distance rallyes to major tourist attractions. While the value of conventional safety and driver training techniques cannot be denied, we believe the best and longer-lasting contribution to safe driving any club can offer has to be the time the members spend on the track. There they learn to make the best use of their vehicles' handling and safety features. With this in mind, the Taipei Area Sports Car Club is now actively involved in expanding its membership to include any drivers on Taiwan who seriously want to become better drivers. ●

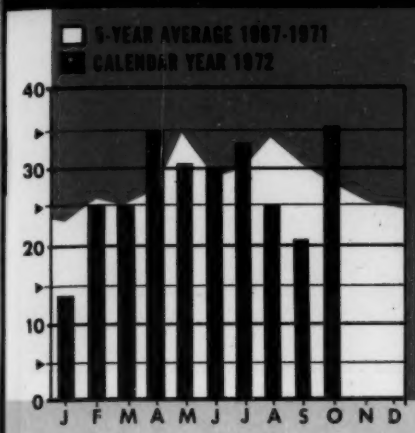
CTI 2 Roger J. Inman, USN
Box 1063 NSGA
Taiwan

(Photos by CT12 Roger J. Inman, USN)

(below)

Datsuns dominate the scene. Tom Weil gives last-minute instructions to retired Navy Commander Bob Chase and his wife, Maggie, as they begin their night rallye.





TOTAL FATALITIES as of 31 OCT:

CY 1972: 271

5-YEAR AVERAGE: 289

A monthly recap of selected accidents—presented solely in the hope some will benefit from the unfortunate experiences of others

HOW GOES IT?

Rank: Capt
Age: 31
Type vehicle: 1966 Volvo 2-door

The down-sloping deceleration lane of the 65-mph highway required reduction in speed to 20 mph within 300 feet of the off-ramp entry point.

The Capt decelerated to approximately 60 mph to enter the lane, but the sedan did not slow as it entered the sharply curved off-ramp. The vehicle departed the pavement, crossed the dirt median, climbed up the shoulder of the adjacent on-ramp, and left the ground. The airborne Volvo landed upright on the opposite shoulder of the on-ramp, crashed into a drainage ditch, and nosed into a wall of concrete-filled sandbags.

The steering column was driven 8 inches to the rear, and the Volvo's single-piece seat belt/shoulder harness unit was useless in preventing fatal head, neck, and chest injuries because of the extreme forces applied to the vehicle.

The clevis pin was found to be missing from the master brake cylinder thrust rod. All unit personnel were encouraged to inspect their PMVs to insure the security of brake connections, to be highly selective in choosing an agency to perform PMV maintenance on all critical components, and to use defensive driving techniques that include pre-planning alternate courses of action in the event of brake failure.

Probable cause:
Failure to negotiate curve.

Probable contributing factors:
Speed too fast for road condition; inoperative braking system, caused by design deficiency requiring cotter pin as only device to hold clevis pin in position; downhill decleration lane too short; no off-ramp guard rail; braking action delayed until too late for emergency procedures.

Rank: A1C
Age: 20
Type vehicle: 1965 Ford Hard-top

The airman was visiting his parents while on 48-hour shift break. At 2120 he accelerated his father's Mustang until it began to fishtail. The careening vehicle crossed over into the opposing lane and crashed head-on into an oncoming car when he lost control.

Both cars were totaled, and both drivers received fatal injuries.

Probable cause:
Loss of control.

Probable contributing factor:
Excessive speed.

Rank: A1C
Age: 19
Type vehicle: Unknown (pedestrian)

As the airman was returning to his base at 0415, after visiting his girlfriend's home, he was killed by an unidentified vehicle.

The victim was wearing dark clothing and walking with the traffic flow.

Probable cause:
Walking on wrong side of road.

Probable contributing factor:
Wearing dark clothing at night, without reflective strips, and not carrying a flashlight or illuminating wand.

Rank: A1C
Age: 20
Type vehicle: 1967 Triumph Motorcycle 500cc

The airman dismounted at a gated railroad crossing and, since the gates were closed, tried to push his bike through the pedestrian gate. The pull of a strong return gate spring increased the difficulty of the unorthodox maneuver, and he was killed by a passenger train while preoccupied with negotiating his machine through the gate.

Probable cause:
Illegal crossing.

Probable contributing factors:
Helmet may have prevented his hearing train's warning horn. In addition, his attention may have been diverted by the gate striking the rear of his bike.

Rank: A1C
Age: 19
Type vehicle: 1973 Chrysler 4-door

The Newport was equipped with left front and both rear tires of the G78 type, but the right front wheel sported a G70 wide oval. The original bucket seats had been replaced with over-sized seats which were not secured.

A rainstorm had covered parts of the highway with water, and the front tires hydroplaned when they contacted one of the puddles at 55 mph. The oversized tire caused the car to swerve suddenly to the right, and movement of the unstable seat caused the airman to overcorrect. The vehicle went into a broadside skid, crossed the centerline, and was struck by an oncoming car.

Investigators concluded, due to speed and angle of impact, use of seat belt would probably not have prevented the airman's death. However, they felt that seat belts would probably have lessened the serious injuries sustained by the civilian occupants of the the other car.

Probable cause:
Loss of control.

Probable contributing factors:
Speed too fast for road and weather conditions; mismatched tires; hydroplaning.

Does your air-cooled "bug" suffer from valve-clatter? Does it gasp and wheeze when idling? Does it almost die when you accelerate from a stop? It might be down on performance because you are too low on funds to have it tuned. Well, DRIVER decided to have a go at helping all of these little out-of-tune imports by giving general do-it-yourself procedures for engine tuning at about half the usual cost.

First, however, be assured that DRIVER *DOES NOT* advise doing any work which could void a new-car warranty. Any car which is under warranty should be taken to an authorized dealer for the prescribed maintenance (in the case of Volkswagen, every 3,000 miles). A do-it-yourself tuneup and valve adjustment before the warranty expires can save some money now; but it could cost a lot in the event of a major failure not covered by a voided warranty.

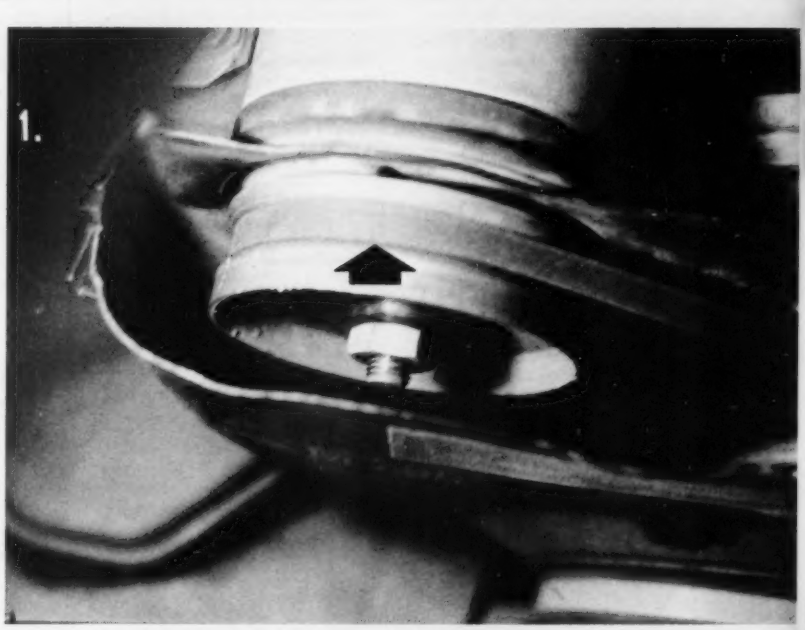
But for you "unwarranteed" owners, tuning Volkswagens is relatively easy,* and tuneup operations are accomplished in basically the same manner as any four-cylinder automotive engine. The only exceptions to this are the newer fuel-injected engines. However, these engines can be tuned generally in the manner described here, other than timing the ignition and making final adjustments. The procedure for timing an injected engine will be covered here; but the Volkswagen injection system is unique, and any adjustments to this system should be made only by qualified VW people with the proper facilities.

**This is especially true of the older pre-emission control engines. Owners of the newer model VWs might do well to study VW emission control systems or take the vehicle to a qualified mechanic for at least the required emission control maintenance.*

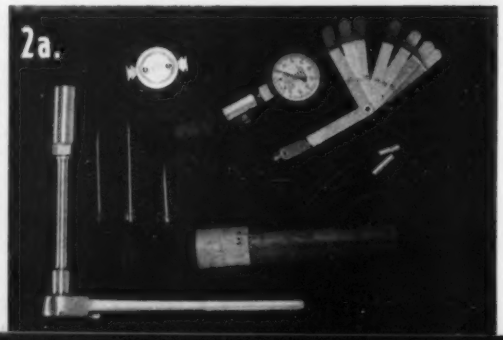
Those who need refreshing on basic tuneup procedures can refer to Part 4, "YOU, the Mechanic!" (Mar '71 DRIVER); "Put Some Spring in Your Engine" (May '72 DRIVER); and "Complete Ignition Tuneup" (Aug '72 DRIVER), or consult a Volkswagen service manual for more detailed instructions and information.

Before getting into the actual tuneup, make a visual inspection of the battery and engine compartment. Because of its

This article should not be construed as an endorsement of Volkswagens, or as being fully comprehensive in all aspects of engine tuneup. Instead, it is intended as a helpful guide, and to encourage readers owning engines of this type to keep them in tune and in safe operating condition.



1.
The generator-blower drive belt has proper tension when slight thumb pressure creates a 1-inch deflection. A loose belt is tightened by removing spacer washers from the inside of the drive pulley (arrow). Remove the nut from the generator shaft and take off the outside half of the pulley, being careful not to drop any washers into the belt housing (if so equipped). For approximately every extra inch of belt play, remove one washer from between the pulley halves; then replace outer half of pulley, just as it came off. Removed spacers can be stored on the shaft between the outer pulley half and nut. Tighten the shaft nut, start the engine, and let it idle briefly. Stop the engine and check belt tension; if too tight, a washer can be replaced between the pulleys.



2., 2a.
Although DRIVER recommends working in the hobby shop whenever possible, the relative simplicity of tuning older model VWs makes it quite easy to do the job at home. Inexpensive, original-equipment tuneup kits are available at many discount stores. But, be doubly sure to get the proper kit, because tuneup parts are changed frequently. Be sure to have all the required tools, instruments, tune-up parts, and engine specifications ready before you start. The tools and instruments include a compression gage, plug wrench (comes with most VWs) gapping gage, feeler gage (which goes down to

unusual location, sometimes under a rear seat, the VW's battery is often overlooked. Check the fluid level and inspect for corrosion. Clean the battery and cables thoroughly and cover the connections with grease or petroleum jelly to help prevent recurring corrosion.

Inspect the blower-generator drive belt. The belt has proper tension when a 1-inch deflection is produced by slight thumb pressure on the belt, halfway between the two pulleys. Adjust the belt by adding or subtracting spacer washers to or from the two halves of the generator pulley (see photo 1). Too tight a belt can be detrimental to generator bearings and other parts, so don't overdo it. If the belt is tight enough, but still squeals, it is probably glazed over on the inner surfaces and will need to be replaced. Also replace a belt that shows signs of wear, or if removing all the spacers from inside the pulley does not produce proper belt tension.

Following these pictured steps carefully should result in your VW running smoothly in about an hour.

To help other foreign car owners take care of their machines, DRIVER plans to run some articles based around general maintenance on some of the more common import cars. Anyone with suggestions or information concerning articles for this series, please write to Editor, DRIVER magazine, AFISC/SEDD, Norton AFB CA 92409. •

Getting the BUGS out of your BUG

Technical assistance provided by WALTER [illegible] LOWE, San Bernardino, Calif.

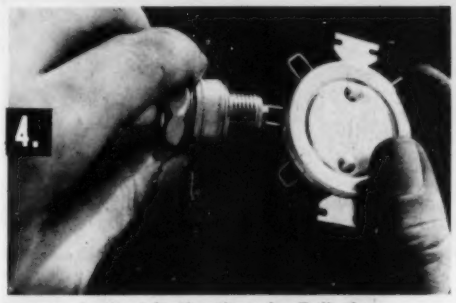
.004), adjustable wrenches, assorted screwdrivers (including a small magnetized one for ignition work), 12-volt test lamp, and possibly a timing light, vacuum gage, and dwell meter. Tuneup specifications such as plug gap, point gap and dwell angle, timing, and valve clearance can be obtained from your owner's manual or a service manual. Tuneup parts should include new spark plugs, ignition points, rotor, condenser, and possibly a distributor cap.

3., 3a.

Compression should be checked before beginning a tuneup. An engine suffering from compression problems may not respond to a standard tuneup. Clean foreign matter from plug wells (best done by using compressed air—or reversing your vacuum cleaner—while wearing safety goggles) and remove all plugs carefully, noting unusual colors or deposits. Proper-firing plugs should have a chocolate-brown appearance. (Any other color, or deposits, should be checked against a plug chart or shown to a qualified mechanic for diagnosis of possible engine problems). Place the compression gage coupling into the plug hole of any cylinder, crank the engine over four or five times (use a buddy for this if you don't have a remote starter switch), and note the highest reading on the gage. Check the remaining cylinders in this manner; variation between cylinders should not exceed 20 pounds per square inch. Seek expert advice if you find excessive variation.

4.

Set new spark plugs to proper gap (.026 on most older engines and .028 on newer models, but refer to your manual to be sure). Check ignition harness and replace any wires that are cracked or worn; then install plugs, being careful to start them correctly in the threaded sockets

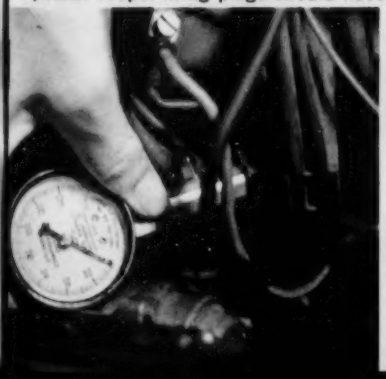


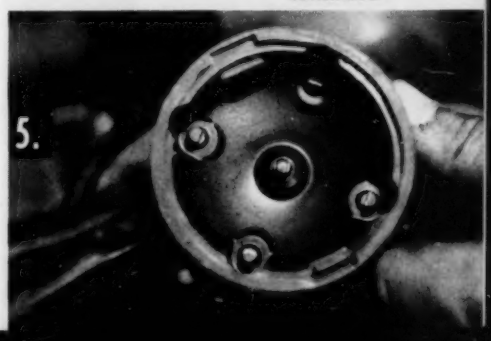
so you don't strip the threads. Pull plug and coil leads from the distributor cap and inspect wire ends and cap terminals for corrosion or excessive burning. Even on a four-cylinder engine it is easy to cross wires when replacing them. Be sure you know where they fit into the cap, or make a sketch before removing them.

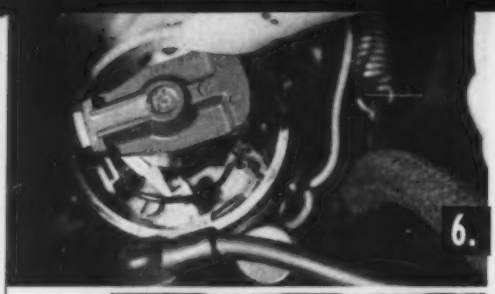
5.

With plug and coil leads pulled from distributor, pop the cap side-clamps off, with a screwdriver and remove the cap for inspection. It should be free of cracks and excess corrosion. Using a screwdriver, gently scrape light carbon deposits and corrosion from contacts. Replace the cap if it is corroded, cracked, or badly burnt.

continued







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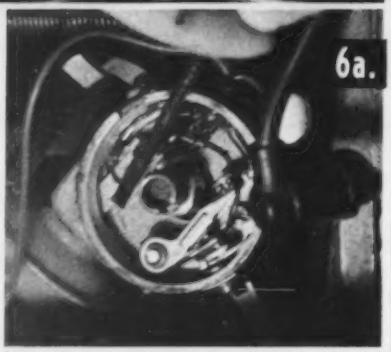
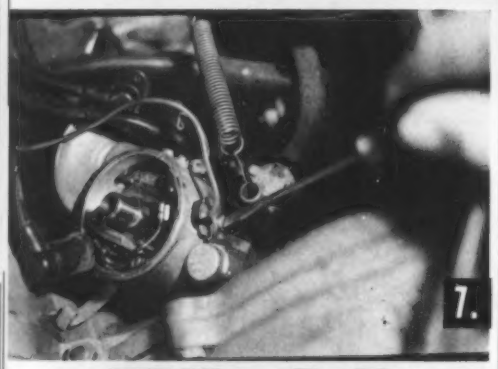


6a.

6., 6a.

Before replacing old breaker points and condenser, it is a good idea to check the vacuum advance and mechanical advance (governor advance). Check the mechanical advance by twisting the rotor in its normal turning direction until it stops, and let go; spring tension should snap it back to its original position. Check vacuum advance, if distributor is so equipped, by pushing breaker-plate connecting lever against spring (see photo 6A) and releasing it. The spring and plate should return to original or full retard position. This method checks only spring tension; so the unit could possibly be faulty, even with proper tension. If either system is bad, get expert advice.



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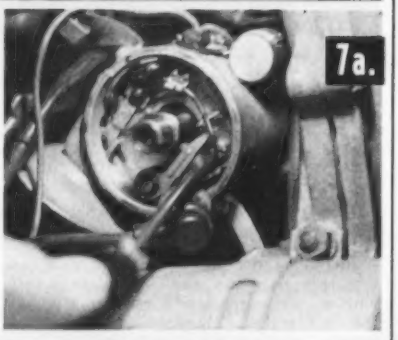


7a.

7., 7a.

Now you are into a more critical phase. Lift the rotor out by pulling it up; then remove the holding screw, pull the leads at the coil and points, and remove the condenser. Lift the breaker points out carefully after removing the lock-down screw. Place the small screws in a receptacle; they are easily dropped and lost. The magnetized screwdriver will be very useful here. Install a new condenser and attach the leads. Put a light covering of oil on the distributor cam and install the new points; do not tighten the lock-down screw all the way. You are now ready to adjust the points.

8.

Turn the engine until a high lobe of the cam is centered directly under the "tit" on the lower arm of the points, forcing them open. With the points opened by the high lobe of the cam, adjust the point gap to the proper specifications by inserting a clean feeler gage into the gap and moving the adjusting arm until the gage fits snugly. Tighten down the lock-down screw and recheck the gap. An exact gap setting is necessary for top starting and running performance.

9.

If you have the equipment, check the point dwell. Replace the rotor (or install a new one) and reinstall the distributor cap. Replace the coil and plug wires, being sure they are in their correct positions in the cap. (If the car won't start, or backfires when it does, you'll know you've crossed the wires. Recheck them.)

With the ignition off, attach the positive lead of the dwell meter to the distributor side of the coil (where the condenser lead attaches). Then ground the other lead and start the engine. Set the dwell meter on eight cylinder and mentally double the reading. The dwell reading should be 50 degrees. You may have trouble here, but the closer you can get it the better. If the meter reading is too high, shut off the ignition and reset the points slightly wider. Start the engine and recheck dwell. If the dwell reading is too low, set the points closer. Just keep resetting the points and checking the dwell until you get it right. After attaining the proper point-gap setting (and possibly checking dwell), you are ready to time the engine.

10.

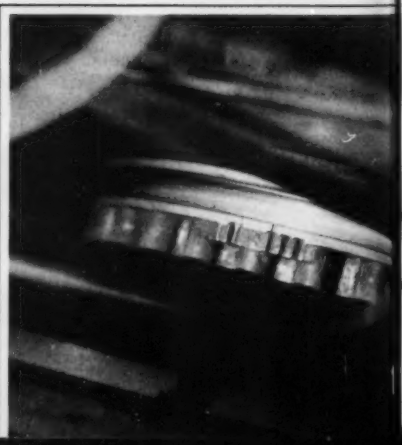
Locate the timing notches on the crankshaft pulley, as well as the timing pointer or vertical crankcase joint directly above the pulley. On older model Volkswagens there are only two timing notches. The notch farthest right represents 10 degrees BTDC (before top dead center), and the notch on the left represents 7½ degrees. Check the manual to be sure of the proper timing setting for your engine; either 7½ or 10 degrees.

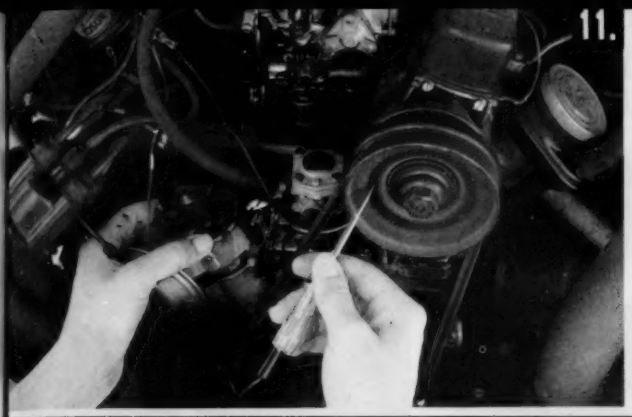
11.

For timing statically, with a cold engine and the point gap properly set, turn the crankshaft until the rotor is in position to fire the Nr one cylinder. (This is easily done by placing a wrench on the generator shaft nut and turning the engine over manually, or a remote starter switch can be used to crank the engine into position.) If you're not sure which cylinder is Nr one, check the engine just above the plug wells. You should find the number engraved in the metal. Your manual will also show the location of the Nr one cylinder and where that plug wire should fit into the distributor cap. Align the required timing notch with the timing pointer or joint. Connect one lead of a 12-volt test light to the positive terminal of the ignition coil, ground the other lead, and turn on the ignition. Loosen the clamp-screw and rotate the distributor clockwise until the points begin to open and the test light glows. Then tighten the clamp-screw. If you encounter detonation ping after timing at 10 degrees, reset the timing to 7½ degrees.

8.

9.

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12.

12.

Static timing, as described in the previous step, can be used for all VWs; but on the newer engines with full emission control vacuum advance, a stroboscopic timing light may produce the best results. Either a battery-powered or neon-bulb strobe light may be used. The battery-powered light has two leads which hook to the positive and negative terminals of the battery, and a third lead which hooks into the Nr one plug terminal at the distributor. The neon-bulb light has one lead which attaches to the top of Nr one plug and a lead which hooks into the Nr one terminal at the distributor cap.

Locate the proper timing notch and mark it with white chalk or fluorescent paint (fuel-injected engines should be set at 0 degrees, and will have a third timing mark or notch to the far left indicating this setting). Pull the vacuum advance line at the distributor and plug it by attaching a vacuum gage or taping the end. With the engine warm and idling properly, aim the timing light at a 45-degree angle toward the pulley. If the marked timing notch and timing indicator don't align, loosen the distributor and turn it slowly until the marks do line up. Lock down the distributor and recheck timing. *Don't forget to reinstall the vacuum line!*

13.

After timing, the carburetor can be adjusted to complete the tuneup. If you have a tachometer, warm the engine to operating temperature and set the idle to the recommended rpm. Or, you can adjust the idle screw until there is a smooth idle at low rpm. Then, turn the volume control screw (located at the base of the carburetor) in slowly until rpm drops; turn the screw out until the engine runs smoothly, and turn the screw clockwise one-quarter turn. *For any adjustment on a fuel-injected engine, take the car to a qualified VW mechanic.*

14.

Valve adjustment is another very important item, and should be done every 6,000 miles. Valve adjusting is treated last here, but can be done before ignition tuning. However, the engine must be **cold** to get proper adjustment. Check the valve clearance specifications for your engine; a sticker on the fan housing supplies this information for 1966 and later models. An angled feeler gage such as the one pictured is easiest to use for checking valve clearances.

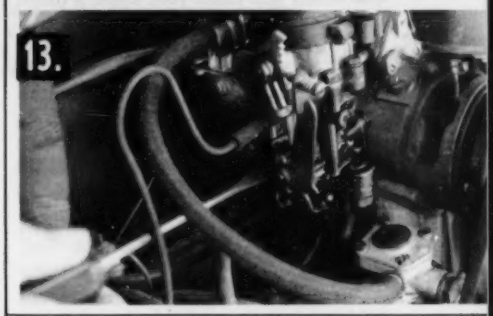
15.

Remove both valve covers and check the gaskets (new gaskets are easily obtainable from parts stores if the old ones are overly compressed, or in bad shape). Turn the crankshaft until the Nr one cylinder is in position to fire. This is best determined by removing the distributor cap and turning the crankshaft until the rotor is in position to fire Nr one, and the points are just ready to open.

16.

The valves of Nr one cylinder are both closed and can now be adjusted by placing a clean feeler gage in the gap. Loosen the outside locking nut and turn the adjusting screw either in or out until there is a snug fit on the gage. (Be sure the gage is parallel in the gap, and not bent). When the clearance is correct, tighten down the locking nut while holding the adjusting screw in place with a screwdriver. After the locking nut is tight, recheck the clearance; it could change when you tighten the nut.

After both valves of the Nr one cylinder are adjusted, repeat the process on the remaining valves, following the correct firing order. To always be sure which set of valves to adjust, trace the plug wire the rotor points to. Replace valve covers, start the engine, and listen for valve noise. If a valve is loose, it will clatter; however, valves adjusted too tightly are as bad as loose valves. So, if you're not sure, adjust them with a little extra clearance and readjust any that make excessive noise. If you adjusted the valves last, you are ready for a test drive; if you did them first, you can carry out the rest of the tuneup.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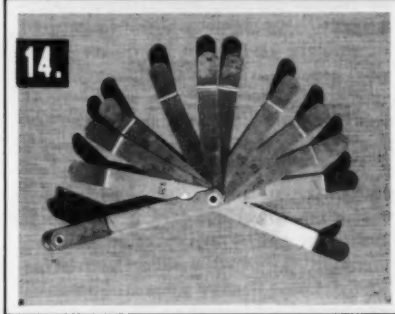
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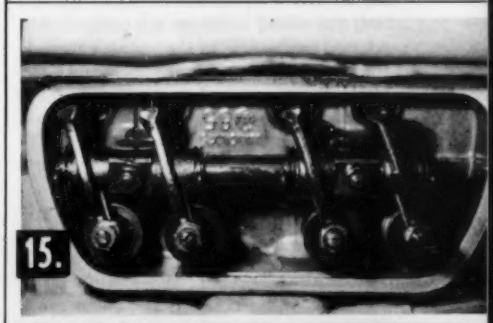

15.

16.

INTELLIGENT MOTORCYCLING part V

more on maintenance

There are certain sophisticated jobs in motorocycle maintenance which should be left to an expert. On the other hand, there are many important tasks that you can easily do yourself, and which will make your cycle a much safer machine to ride.

Last month's installment in this series dealt with some important maintenance involving nuts, bolts, tubes, and tires. This installment continues the author's introductory primer for the average (novice mechanic) rider by moving on to some other areas of consequence to safe cycling.

WHEELS AND BEARINGS

These items seldom give trouble, but do require periodic maintenance. Occasionally spin both wheels (one at a time) while the bike is on its stand, letting a screwdriver trail lightly on the spokes. You should hear a clear musical note as each spoke is struck. Any spoke that sounds dead is loose and should be tightened by a *professional.* Indiscriminate tightening of spokes will throw the wheel out of true, and could cause the end of the spoke to puncture the tube. A broken spoke must be replaced immediately, since it throws an unmerciful load on the adjacent spokes.

If the wheel bearings are cleaned and greased according to the manufacturer's specifications, they seldom need any other attention. In fact, they will easily outlast other components.

FRAME, FORKS, AND SWING ARMS

The frame of a modern motorcycle is the result of many years of design effort. Early frames were subject to cracking at welded joints and other points of stress concentration. As manufacturing methods improved, this problem all but disappeared. If you use your cycle primarily for riding on smooth pavement, you will probably never have frame failure. However, many riders are enjoying the thrills of racing, cow-trailing, and other off-the-road activities which put added stress and strain on the entire motorcycle; particularly the frame, forks, and swinging arm structures, as well as engine and other mountings.

Wheel balance should be regularly checked by a dealer with the proper equipment. Out-of-balance cycle wheels cause high-speed wobble and instability. Incorrectly mounted tires and loose wheel spokes are the most frequent causes of wheel imbalance. Both jobs should be done only by an expert.

Make it a regular practice to examine these parts and note any small cracks or fissures, cracked paint, or looseness of bracing or fillets. Unfortunately, without an X-ray you cannot see into places where incipient metal failure may be taking place. However, you can examine the surface, particularly after you have ridden the machine hard over rough terrain. If you note any of the danger signs, don't wait — it won't cure itself. Take it to a cycle shop that specializes in the repair of major components, and tell them that you want your cycle back in first-class condition.

ENGINE AND TRANSMISSION

Motorcycle engine and/or transmission failure is usually not too serious a problem; only an annoyance. Nevertheless, there are occasions when failure could be hazard to machine and rider.

No one should risk engine failure on a freeway. This means walking for help (pushing is suicide), and a return with a pickup to load and take the disabled cycle back to the shop. Freeways are particularly dangerous for this kind of activity.

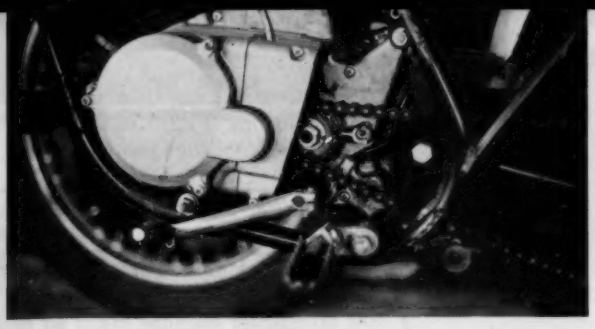
Engine seizure scuffed this piston; a rather common occurrence with two-stroke and other newly overhauled engines. Seizure occurs when the piston overheats and sticks to the cylinder wall, locking the rear wheel. You can land on your head if you don't disengage the clutch immediately. When breaking-in a fresh engine, or if the engine is running hot, be ready to grab the clutch and let the engine cool by coasting if seizure does occur. Since seizure can scuff pistons and cylinder walls, engine repairs and adjustments may become necessary.

Breakdowns in areas of extreme heat or cold can also cause serious trouble. A defunct bike won't offer much shade in a blistering desert. And, at the other extreme, it is no fun to poop out alongside an icy highway with the temperature at 20 below with no help in sight. Engine seizure, however, can produce more spectacular results. This can occur when newly overhauled engines are driven too hard and too long. The piston simply expands to fill the cylinder, and promptly stops. This may result in locking of the rear wheel with consequent heavy braking (and breaking) effect. You can avoid engine seizure of this type by running a new engine at first for only short periods of time with generous cooling-off spells. Avoid lugging the engine on hills, which increases cylinder pressure and temperature. Just in case, keep two fingers on the clutch lever while breaking in a new engine.

Tranmissions usually require only maintenance of correct oil level and periodic oil changes. However, it is to your advantage to know the condition of the "box" inside, so periodic dismantling and checking is a good idea.

Adapted from CYCLE WORLD. Permission from Bill Kaysing and the Parkhurst Publishing Co gratefully acknowledged.

by BILL KAYSING



The chain is the heart of the motorcycle; keep it lubricated and adjusted. Replace it if it shows signs of wear; a broken chain can leave you stranded and might remove part of your leg if it flies off at high rpm. The primary chain on a four-stroke engine is often neglected because of difficult access, but should be checked at least once a month. Adjust the chain if it has more than an inch of play; otherwise, it will eventually break and probably crack an expensive engine.

Control cables and levers are dangerously overlooked items on a cycle. A single broken strand in the cable can cause a throttle to stick wide open. Cables should be regularly inspected and oiled. Control levers should be kept clean and mounted fairly loosely to prevent them from breaking off during a spill. It is a good idea to keep a spare control lever with the bike at all times, no matter what type of riding you do.

Worn bearings and cogs should be replaced to preclude failure of the transmission and a likely accident when riding down a steep hill, when downshifting, or at high speed.

Sprockets and chains are perhaps more troublesome and need more loving care than all the engine and transmission parts put together. The engine-to-gearbox chain (primary) is often neglected, since it cannot be seen without removing an inspection plate or, on some machines, the entire case cover. Check this vital component at least once a month and, if it is loose (more than an inch play), adjust or replace it. Regular primary chain inspections will save you money in the long run, for the chain usually takes an expensive case with it when it breaks.

The secondary chain from the counter-shaft sprocket to the rear wheel is exposed on most cycles, although there is now a trend to enclose it. In either case, the chain should be maintained in good condition and inspected regularly for looseness and excessive wear.

Replace broken sprockets and chains before something happens that will cause a loss in time and money far exceeding the cost of a new part. A new chain will be much safer, and ultimately less expensive than replacing individual links.

CONTROLS

Using up the last few days in the life of a worn control cable is a false economy of the worst kind. Remember, you count on engine compression to slow your bike's speed into a turn. A single broken strand in the cable can cause the throttle to stick wide open. There are few experiences that match this one for sheer terror. It has to happen only once to a rider to make him a believer in regular cable inspection, and replacement if necessary. Without engine compression and, what is worse, with an added burst of speed from a stuck-open throttle, it is likely you will not complete a turn. It might complete you! While scheduling periodic cable inspection is difficult, it should be done often enough to detect and remedy cases of wear which ultimately would result in broken strands.

Do as the racers do — work over your controls until they function like a fine watch. Lap and polish all parts until they shine. Then reassemble them carefully and seal with plastic, rubber, or other protective material to keep out dirt and dust until they are reinstalled.

The same care should be given to clutch assemblies, since failures here can be a serious inconvenience, and could propel you into a busy intersection (see Part II of this series, July '72 DRIVER).

The two brakes on your cycle are as important as the clutch and throttle. Linings, drums, and actuating linkage must be checked regularly. The rear brake pedal should be adjusted to achieve maximum braking within a minimum distance. But, the pedal should not be so tight that it drags and causes overheating and loss of power while traveling.

The front brake promotes shorter stops, and is an "extra" brake in case the rear brake should fail. Keep the front brake control cable clean, and replace it *before* it becomes frayed. For road riding, adjust it so it doesn't quite lock the wheel in a "panic" stop.

Failure of the air or spark control will not usually prove hazardous, but what about the innocent looking headlight switch? Riders have crashed because of light failure at night on winding roads, so keep the switch, bulb, and wiring in top shape. Replace your headlight bulb when one filament breaks, so you'll always have a spare beam.

HANDLEBARS, TANKS, WIRING, AND MISCELLANEOUS EQUIPMENT

Handlebars should be kept properly trimmed at the angle which gives you best control. Keep brake and clutch controls mounted for maximum ease in applying them.

Leaking is the biggest single problem with cycle tanks. It is surprising that these tanks hold up as well as they do; however, some of them eventually develop leaks around the seams and tubing connections . . . especially where they attach to the carburetor. There is always the possibility that leaking gasoline will be ignited by a chance spark or backfire. Motorcycle fires, by the way, are very difficult to extinguish.

When the bike has been damaged or reaches advanced age, replacement of wiring may be in order. In the interim, check often for cracked insulation and loose contact points. The vibration inherent in most cycles makes periodic electrical system checks a must, especially for the battery and its cables.

We can place all of the peripheral equipment carried by a motorcycle in the "miscellaneous" category. This includes mufflers, seats, saddle bags, license plates, and tenders. Little maintenance is required on these items, unless you've had a spill. Just be sure they are properly installed and offer no sharp edges to tempt bad fortune.

Put this information to practice, and you may live to take your great-grandchildren out for a spin on. . . . say, a 3cc Nuclear Popper that develops a modest 335 horsepower. That is, if you ride carefully and watch out for the cars. . . . remembering your "invisibility" to motorists. ●

(Editor's Note: In our next issue, Bill Kaysing discusses "Safety in the City.")

LETTERS TO THE EDITOR

BACKFIRE

Address your letters to:
Editor
DRIVER Magazine
SEDD
Norton AFB CA 92409

Re: "The Law and the Automobile," Jul/Aug DRIVER.
The NJ Supreme Court recently ruled that a car owner who did not use nor require his passengers to use installed seat belts was guilty of contributory negligence in an accident. I also read about a stolen car that had been wrecked in an accident. The *owner* was held negligent for leaving his key in the ignition.

Since my parent unit no longer distributes DRIVER, I obtained my own subscription. The first issues were late in arriving; then I received the June, July, and August copies within 8 days. I wonder if other subscribers have similar problems?

Keep up the good work.

Detachment Commander
New Baden IL

Thanks for the seat-belt and car-key negligence info. These are points every driver should consider.

Concerning slow delivery of personal subscription issues, DRIVER does not handle subscriptions. Suggest you write Supt of Docs, GPO, Wash DC 20402. Concerning unit distribution, suggest you immediately contact your Wing Base Chief of Safety and let him know your unit's requirements. There was no Sep '72 issue of DRIVER, however, because of a reduction in printing funds. Also, the printing contract change necessitated 2 to 3 weeks delay in mailing the Oct/Nov '72 issues.

DRIVER's June '72 "How Goes It?" told of two motorcycles involved in a fatal head-on crash. One of the bikes had an extended front end, and you said it possibly affected the rider's reaction time. All I have to say is, no matter how long your forks are, the distance from the foot rest to the brake is the same.

I have gone into corners at high speeds with 12-inch forks and a ¾-inch rake in the neck, and it didn't affect my reaction time at all.

Bob Frese
CGC Hamilton (WHEC 715)
CG Base Boston MA 02100

The report didn't say how long the forks were, but the investigators felt they were a bit too long. And, as we pointed out in "Choppers . . . Yes or No?" Jan '72 DRIVER, "Anything over 10 inches will stretch your neck." The experts say fork length and angle, raised center of gravity, and the rider's position on the bike all have considerable effect on reaction and stopping time. This is undoubtedly why insurance companies assess a higher premium on cycles with extended front ends.

A word to the absent-minded biker who thinks it can't happen to him.

After a 70-mph lay-down on a '72 Honda CB 500, my rear tire went flat, my passenger was thrown off, and my machine slid 350-400 feet with me riding the underside. Let me assure you it was no fun—injured girlfriend, assorted wounds, ruined bike, torn clothes, and another crash-and-burn on my license.

I could have avoided that crash by checking my tires before taking off. Don't wait and learn the hard way, or you and your angel-maker may meet the Great Rider in the Sky sooner than you'd like. I and mine nearly did.

Sgt Dennis E. Berry
USAF Hospital
McConnell AFB KS 67221

Thanks, Sarge, for the illuminating example.

I hereby offer to pay any price you ask for the Triumph Spitfire shown on the back cover of Aug '72 DRIVER.

Any Spitfire that will do 128 mph (at 2900 rpm yet) should be a real threat in SCCA racing.

Capt Warren S. Kirtland
63d Aerial Port Sq (DA)
Norton AFB CA 92409

You are quite right—that would be one heck-of-a Spitfire. However, we are sorry to disappoint you with the information that the fake speed indicator was dubbed in by our art department. It was part of an experiment by the Editor to see if readers are looking at the "What Should You Do?" feature closely. After more than 40 letters, we've decided the answer is a resounding "YES!" In this issue, page 21, we challenge readers to find several errors in a different driving situation. How many can you find?

Re: "Miss DRIVER" in Aug '72 issue. If I check my tire pressure while the tires are cool and find them low, how do I figure out how much air to add after they have been heated up while driving to the service station?

As commander of a small unit with a high percentage of young troops, I find your magazine a great means of getting the message of safe driving across. I'm not too old or to knowledgeable to learn from it, either.

Lt Col Irwin B. Abrams
Comdr, Det 6, 15th Wea Sq
Hill AFB UT 84401

Check them again (with your own gage) and add the difference between the "cold" reading and maximums molded into the sidewalls (or in your owner's manual). Four pounds over max is safe if you don't exceed 32 psi in load range B (4-ply), 36 psi in range C (6-ply), and 40 psi in range D (8-ply). Otherwise, allow for 5 pounds over minimum.

Why does AFR 127-5 require use of protective eyewear for cyclists during fog and light drizzle? I've found this requirement extremely dangerous, especially for the novice rider; possibly more dangerous than what it's intended to prevent.

This causes a cyclist to release his hold on the controls on wet, slippery pavement. Dirt or bugs are practically nonexistent in fog or rain, and the eye irritation caused by wind is also reduced by decreased speed necessitated by wet pavement.

How about making the eyewear optional during these periods?

TSgt Roger Friend
15AF (DOCF)
March AFB CA 92508

We agree it is dangerous to take your hand off your cycle controls to attempt to clear your eyewear. This would not be necessary if you treated your goggles with one of the many anti-fogging, anti-misting preparations available at cycle accessory shops or helmet stores. Vented goggles also work to prevent the inside of the lenses from fogging up.

Some riders might take advantage of the "loophole" if the requirement were made optional.

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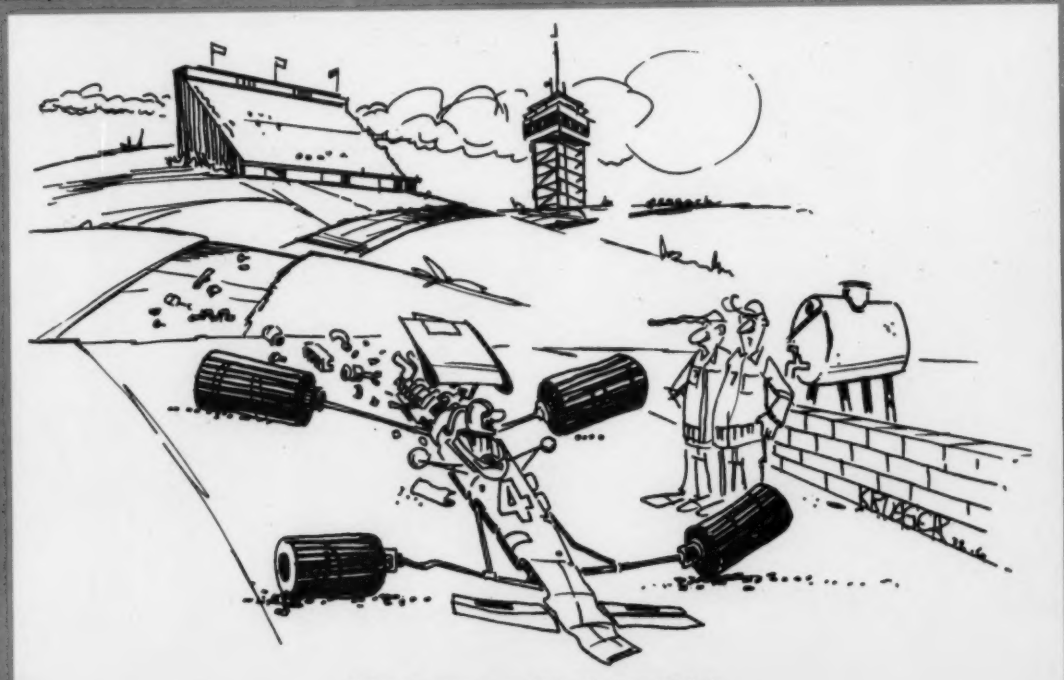
UNEXP
"Let's fly down and look for some seeds."
"Fly? . . . I bet we could walk down!"
COUGH
KRUEGER 72
"Of course I can fix it . . . if I can get it open!"
ACME
SERVICE STATION ETC.
SPLUT

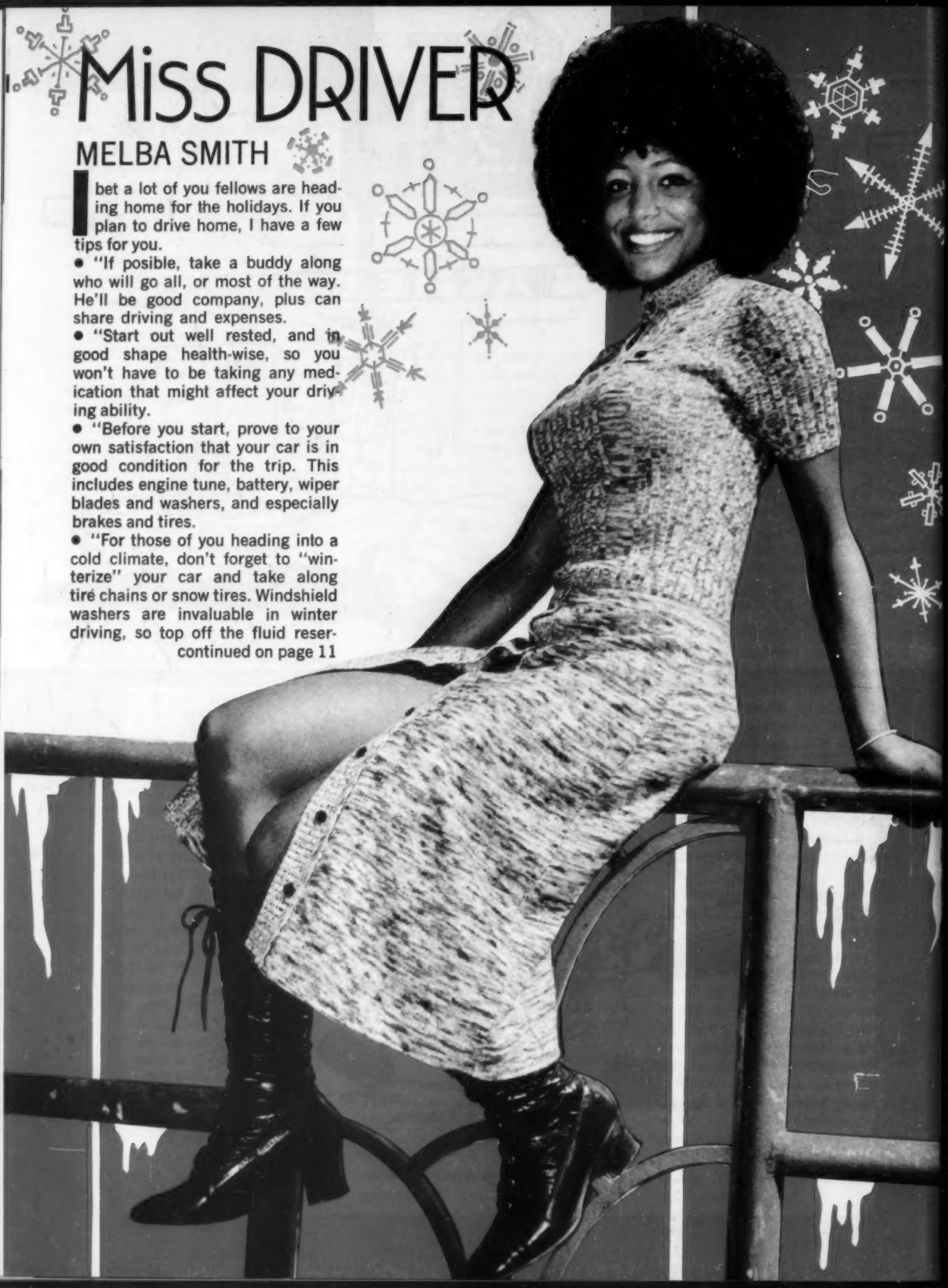


"Well, for openers, I think we've exceeded design specifications. . . ."

Miss DRIVER

MELBA SMITH

I bet a lot of you fellows are heading home for the holidays. If you plan to drive home, I have a few tips for you.

- "If posible, take a buddy along who will go all, or most of the way. He'll be good company, plus can share driving and expenses.
- "Start out well rested, and in good shape health-wise, so you won't have to be taking any medication that might affect your driving ability.
- "Before you start, prove to your own satisfaction that your car is in good condition for the trip. This includes engine tune, battery, wiper blades and washers, and especially brakes and tires.
- "For those of you heading into a cold climate, don't forget to "winterize" your car and take along tire chains or snow tires. Windshield washers are invaluable in winter driving, so top off the fluid reser-

continued on page 11